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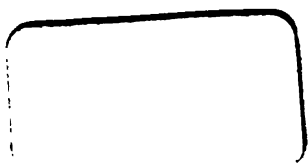
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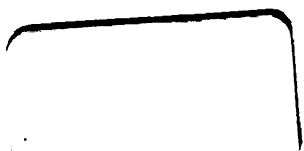
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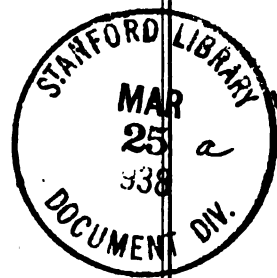
NOTES

ON

ORGANIZATION, ARMAMENTS,

AND

MILITARY PROGRESS.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1896.

NOTES AND STATISTICS

OF

ORGANIZATION, ARMAMENT, AND MILITARY PROGRESS

IN

AMERICAN AND EUROPEAN ARMIES.

WAR DEPARTMENT, MILITARY INFORMATION DIVISION.

DOCUMENT No. 6.

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INTRODUCTORY NOTE.

The first edition of these Notes was issued in August, 1894, and has been long out of print. The first part was devoted to an outline of the combatant arms of the principal European and American armies; the second part to notes on small arms; a third part to intrenching tools, and a fourth part to equipment. This general scheme of classification has been retained in this number. These notes have been revised, made more complete, and brought down to date. The notes on foreign artillery, which it was hoped to include in this edition, have been reserved for a future number. The notes on intrenching tools have been omitted.

February 15, 1896.

CONTENTS.

	Page.
I. ORGANIZATION AND STRENGTH OF THE ARMS AND SERVICES OF VARIOUS EUROPEAN AND AMERICAN ARMIES.	
Austria-Hungary	7
Belgium	27
Colombia	87
England	39
France	59
Germany	91
Holland	118
Italy	127
Mexico	139
Russia	152
Spain	179
Switzerland	198
II. NOTES ON SMALL ARMS.	
Small-caliber rifles, with table	209
North America:	
Mexico	211
Canada	212
United States	212
South America:	
Argentina	212
Brazil	213
Chile	214
Colombia	214
Europe:	
Austria-Hungary	214
England	215
Germany	222
Holland	225
Italy	226
Russia	226
Spain	226
Turkey	228
III. NOTES ON EQUIPMENT AND THE USE OF ALUMINIUM	229
TABLE A, SMALL-CALIBER RIFLES. (FOLDER.)	
TABLE B, SERVICE REVOLVERS. (FOLDER.)	

LIST OF FIGURES AND PLATES.

Mannlicher automatic repeating pistol	Opposite page 215
Bergmann automatic repeating pistol	Opposite page 222

ORGANIZATION AND STRENGTH OF THE ARMS AND SERVICES OF THE PRINCIPAL MILITARY POWERS.

AUSTRIA-HUNGARY.

I.—AREA AND POPULATION.

The Austro-Hungarian Empire has an area of 683,000 square kilometers, with an absolute population of 42,845,000, or 62 per square kilometer.

II.—AVAILABLE STRENGTH.

Every year the registered number of young men who attain the age at which they are available for military service is about 340,000. There are, however, certain exemptions, excuses, and postponements before conscription; after conscription, exemptions may be made for physical disability, for pursuit of certain studies, etc. The number of men enrolled each year in the different portions of the forces (army, navy, landwehr) is called the recruit contingent. The number in the recruit contingent is regulated in accordance with the number of men fit for service in each age class. The total number of men found fit for service, including those classed as "less fit," amounts on an average every year to 180,000. Of these are assigned as the recruit contingent:

To the army (including the navy)	103, 100
To the Austrian landwehr	10, 413
To the Hungarian landwehr	12, 500
Total	126, 013

All the remainder of the men fit for service, including those classified as less fit, are assigned to the "ersatz reserve," for which no fixed contingent is established.

The recruit contingent for the troops of the occupied provinces of Bosnia and Herzegovina is fixed every year and is drawn from the population of these occupied provinces.

The recruit contingent for the army for both states of the monarchy is fixed every ten years in accordance with the census, and is proportioned to the respective populations of Austria and Hungary.

III.—CONDITIONS OF SERVICE.

Military service is divided into military service proper, and landsturm service. Military service proper includes service in the army, navy, and landwehr. To service in the landsturm are liable all citizens able to bear arms, belonging neither to the army, navy, nor landwehr. The inhabitants of the occupied provinces (Bosnia-Herzegovina) have no landsturm liability.

The obligation to enter the army, navy, or landwehr begins on the 1st of January of that year in which the able-bodied man completes his 21st year.

1.—DURATION OF MILITARY SERVICE PROPER.

This lasts in all 12 years, as follows:

(1). IN THE ARMY.—(a) Three years with the colors and seven years in the reserve. In peace, those men who are serving their third year with the colors are sent on “unlimited leave” before their transfer to the reserve and either before or immediately after the recruit class joins for active service. The men belonging to the reserve are liable, during their time of nonactive service, to be called out for three exercises not to exceed four weeks each. (b) Ten years in the “ersatz reserve” (for those directly assigned to that body). In peace, the “ersatz-reservists” receive only eight weeks’ military training in all.

(2). IN THE LANDWEHR.—(a) Two years for those who, after completing their service in the army, are transferred to the landwehr, that is, to the nonactive establishment of the landwehr. In Austria, the landwehr recruits are called out on October 1st, to receive their first military instruction, which lasts, for the foot troops, eight weeks, and for the cavalry, six months. In Hungary, the infantry recruits are called out for instruction on the 1st of March following their enrollment, and are trained up to the 1st of September of the next year, or nineteen months in all. The cavalry recruits are called out on the 15th of October and are trained in all twenty-three and one-half months. In both landwehrs, Austrian and Hungarian, the men are sent on “unlimited leave” after their first training is completed. In Austria, those enrolled directly in the landwehr are liable, during their period of nonactive service, to twenty weeks’ training in all; those transferred to the landwehr from the reserve of the army are liable during the same time to four weeks’ training in all. In Hungary, those enrolled directly in the landwehr are liable, during their nonactive service, to, at the most, five exercises of five weeks each, and those transferred from the reserve, to one exercise of five weeks. (b) Twelve years for those directly enrolled in the landwehr, that is, two years in the active establishment of the landwehr, and the remainder of the time in the nonactive establishment. (c) Twelve years in the “ersatz reserve” of the landwehr, for those directly enrolled in this body, and two years for those transferred from the ersatz reserve of the army.

After completing the military service proper, the men are transferred in general to the landsturm.

2.—DURATION OF SERVICE IN THE LANDSTURM.

Liability to service in the landsturm begins on the 1st of January of that year in which the man completes his nineteenth year, and lasts until the end of the year in which he completes his forty-second year, in all, twenty-four years.

Men liable to service in the landsturm are divided into two bans; to the first ban belong the nineteen youngest age classes; to the second ban, the five oldest age classes.

In case of war, the first ban may be used to fill up the active army and landwehr, in case the “ersatz reserve” proves insufficient.

IV.—MILITARY EXPENDITURE.

The War Budget for 1895-96 amounted to \$56,100,000.

V.—THE COMMAND OF THE FORCES, THE WAR MINISTRY, AND THE GENERAL STAFF.

1.—THE SUPREME COMMAND (COMMANDERSHIP IN CHIEF).

The Supreme War Lord of the entire armed forces is his majesty, the Emperor and King. He appoints the general, field, and other officers, medical officers, judge advocates,

accountants, intendants, and all other military and landwehr officials from the 8th grade upward; he approves the assignment of general and field officers to duty; he sanctions all regulations having reference to the organization, training, clothing, and arming of the troops, the expenditure of money, the accounting and administrative service, and lastly, all matters of grace or pardon.

The military chancellery of his majesty, the Emperor and King, is the intermediary between the supreme command and the central authorities. Its president is a general, and the personnel is composed of field and other officers and military officials (1 general, 3 field officers, 2 captains, 2 section councilors of the 6th grade, and 6 officials).

2.—THE CENTRAL AUTHORITIES.

The central authorities of the forces are (1) the imperial minister of war for the army and navy at Vienna; (2) the royal and imperial ministry of national defense for the Austrian landwehr and the Austrian landsturm at Vienna; (3) the royal ministry (Honved) of national defense in Budapest for the royal Hungarian landwehr and royal Hungarian landsturm.

1. The imperial minister of war is a superior general. The imperial ministry is divided into the "presidential bureau" and four sections, three of which are presided over by general officers; the sections are subdivided into fifteen subdivisions presided over by general or field officers.

The judge-advocate general's department forms a separate branch of the war department. The naval section of the ministry deals with naval matters.

The establishment (exclusive of judge advocates and naval sections) numbers 223 officers and officials, 67 "armee diener," and 19 noncommissioned officers.

The following are auxiliary organs to the chief command or war ministry: (1) The chief of the general staff, (2) the inspectors general of troops, (3) the inspector general of infantry, (4) the inspector general of cavalry, (5) the inspector general of artillery, (6) the inspector general of engineers, (7) the inspector general of pioneers, (8) the inspector general of the train, (9) the inspector general of military, educational, and training institutions, (10) the inspector general of remounts, (11) the commander of the sanitary troops, (12) the chief of the corps of medical officers, (13) the general constructing engineer, (14) the military sanitary committee, (15) the apostolical field clerical office, (16) the special accounting section, and (17) the technical military committee.

The inspectors general look after the training of the troops. They are organs of the chief command and as regards their persons are under direct orders of his majesty.

The technical committee, which keeps up with important improvements in science and technique, is presided over by a general of the artillery or engineer staff, and is divided into 4 sections—(1) section for artillery, arms, and trains; (2) section for engineers, pioneers, and military construction; (3) section for statistics and supplies, and (4) technological section.

The personnel of the committee consists of field and other officers of the general staff corps, the artillery and engineer staffs, pioneers, and of other troops.

2. The imperial royal ministry of national defense (Austrian) is, as a rule, presided over by some general officer. The ministry is divided into the "presidential bureau" and 6 departments. The personnel consists of landwehr officers and officials as well as civil officials.

3. The royal Hungarian ministry for national defense is at present presided over by a general assisted by a "secretary of state." It is divided into the "presidential bureau" and 17 sections combined in 6 groups. The personnel consists of royal Hungarian landwehr officers and officials, as well as civil officials.

3.—THE GENERAL STAFF.

The general staff superintends and carries out all warlike preparations and assists superior commanders in all tactical, strategical, and administrative measures. At its head is a general officer called "chief of the general staff." In time of peace he is an assistant of the minister of war of the Empire, but may address his majesty through the minister of war on matters pertaining to the general staff. He has an assistant, who is a lieutenant field marshal.

The general staff consists of (a) the corps of general staff officers with rank from captain upward, who are promoted within the corps; (b) attached line officers, and (c) details of field and other officers of the line, of the "armeestand," or retired list.

The corps of general staff officers is recruited from the officers of the army who possess the requisite accomplishments. Before transfer to the corps they are attached to it for training in the practical service of the general staff.

In time of peace the officers of the general staff are employed as follows:

In the offices of the general staff, which are (1) the bureau of direction, dealing with personal and economical matters; (2) the bureau for operative and special general staff work, dealing with projects of fortifications, matters of organization and training of the army, regulations, projects for grand maneuvers, etc.; (3) the geographical bureau, dealing with the military geography of the Empire and of foreign countries; (4) the information bureau, dealing with foreign armies; (5) the railway bureau, at the same time dealing with steamship transport, and (6) the telegraph bureau, dealing with the military telegraph system.

With the military authorities and superior commands, each brigade command has a first lieutenant as "brigade general staff officer;" each division and the command of each military territory, and of the fortresses of Krakau and Przemysl, have a "general staff section," headed by a field officer of the general staff, who is styled "chief of the general staff," and lastly, officers of the general staff are employed in the various offices of the war ministry.

Attached to troops for service (as a rule for 1 to 2 years to enable them to prepare themselves for higher commands by practical service with troops).

Special employment (command of the war school, direction of the war archives, historical section of war archives, survey of the country, instructors of all kinds of military schools, and military attachés).

The employment of the general staff in war corresponds to that in peace; its strength is 3 generals, 127 field officers, and 146 captains of the general staff corps, 177 attached first lieutenants, and 28 detailed field and other officers, together 481 officers and 1 accounting official.

The railway and telegraph regiment, the war school, the military geographical institution, and the war archives are under the chief of the general staff.

VI.—ORGANIZATION.

(a) GENERAL.

The Austro-Hungarian army, including the troops in the occupied provinces, is organized in 15 army corps and the Zara command.

(b) THE ARMY CORPS.—PEACE FOOTING.

The composition of the army corps varies according to the region occupied. Generally a corps will consist of 2 divisions of infantry (each of 2 brigades), 1 or 2 divisions of cavalry, 1 brigade of artillery, and the auxiliary services. As a rule, there are 1 battalion of pioneers and 1 division of train in each corps. The pioneer battalion is generally attached to one of the infantry brigades and the train division to the artillery brigade.

(c) THE ARMY CORPS.—WAR FOOTING.

Each army corps comprises 2 or 3 divisions of infantry (active army), and probably 1 division of landwehr infantry; the corps artillery (1 regiment of 4 batteries); a number of sections of technical troops (including the necessary number of companies of pioneers, a corps telegraph section, and a telephone section), and the establishments of the reserve (Reserve-Anstalten), the latter consisting of a corps ammunition park, a light bridge train, a pioneer tool column, a corps train park, a corps subsistence column, and a train squadron.

The cavalry of the infantry divisions may be detached and united under the orders of the corps commander as corps cavalry. When necessary, particular army corps may have separate cavalry regiments or brigades attached to them as corps cavalry.

VII.—THE DIVISION.

(a) GENERAL.

There are 31 infantry divisions and in addition 2 independent infantry brigades in Dalmatia. Five cavalry divisions are organized in time of peace, comprising only a portion of the cavalry.

(b) PEACE FOOTING.

The division of infantry or cavalry consists of 2 (exceptionally 3) brigades of either infantry or cavalry.

(c) WAR FOOTING.

An infantry division on a war footing comprises as a rule 2 brigades of infantry, the divisional cavalry (half a regiment or 3 squadrons), the divisional artillery (1 regiment of 4 batteries), and the reserve establishments or trains, consisting of a divisional ammunition park, a divisional sanitary establishment with a field sanitary column of the Teutonic knights, an infantry subsistence column, and lastly, a train squadron.

A cavalry division is formed, as a rule, of cavalry and artillery, and, in case of necessity, of foot troops (rifles). It has, in addition, reserve establishments, similar to those of an infantry division. The usual composition of a cavalry division is 2 cavalry brigades, the divisional artillery (1 horse battery division of 2 horse batteries), a cavalry telegraph section, 1 or 2 rifle battalions (exceptionally), and the reserve establishments, consisting of a cavalry ammunition column, a cavalry divisional sanitary establishment, a cavalry subsistence column, and lastly, a train squadron.

VIII.—THE INFANTRY.

(a) GENERAL.

There are 102 regiments of infantry consisting of a regimental staff, 4 field battalions of 4 companies each and 1 ersatz battalion cadre, 4 regiments of Tyrolean Imperial Rifles consisting of 4 field battalions of 4 companies and an ersatz battalion cadre each, 26 battalions of rifles of 4 companies and 1 ersatz company each, and 4 regiments of 3 battalions of 4 companies each of Bosnia-Herzegovina troops.

(b) STRENGTH.—PEACE FOOTING.

The normal regiment (including regimental staff, ersatz battalion cadre, and recruiting districts) numbers 92 officers and 1,585 rank and file, of which 80 officers and 1,420 men are combatants.

The normal battalion consists of 18 combatant officers and 373 rank and file.

The normal company consists of 4 combatant officers and 93 rank and file.

The ersatz battalion cadre and recruiting district consists of 7 officers and 24 rank and file, of which 2 officers and 7 men are combatants.

The regiment of Tyrolean Imperial Rifles consists of 93 officers and 1,594 rank and file, of whom 81 officers and 1,427 rank and file are combatants.

The battalion consists of 18 combatant officers and 373 rank and file.

The normal company of the Imperial Rifles consists of 4 officers and 93 rank and file, which is raised to 129 rank and file on the increased footing.

The ersatz battalion cadre consists of 8 officers and 32 rank and file, of which 3 officers and 14 men are combatants.

The independent field battalion of rifles consists of 20 combatant officers, 3 noncombatant officers, and 383 rank and file, among which are 30 noncombatants, which is increased to 25 officers and 535 rank and file, among which are 3 officers and 33 rank and file noncombatants, on the increased footing.

The normal company of the independent battalion consists of 4 officers and 93 rank and file, which is raised to 130 rank and file on the increased footing.

The ersatz company cadre consists of 2 officers and 8 rank and file.

(c) STRENGTH.—WAR FOOTING (Approximately).

The normal regiment consists of 77 officers, 7 doctors, an accountant officer, and 4,003 rank and file.

The normal battalion consists of 18 officers, a doctor, and nearly 1,000 rank and file.

The normal company consists of 4 officers and 232 rank and file.

The normal staff company consists of 2 officers and 120 rank and file.

The ersatz battalion consists of 24 officers and from 912 to 1,472 rank and file.

The ersatz company consists of 5 officers and from 228 to 368 rank and file.

IX.—THE CAVALRY.

(a) GENERAL.

In time of peace the cavalry is grouped into 5 divisions of 2 brigades, each brigade of 2 or 3 regiments. There are, moreover, 8 independent brigades of 2 or 3 regiments each. There are 3 additional brigades, not organized in peace. There are 15 regiments of dragoons, 16 regiments of hussars, and 11 regiments of uhlans (lancers, so-called). Each regiment consists of 2 divisions or wings of 3 squadrons each, 1 ersatz or depot squadron, and 1 pioneer section; in all, 42 regiments, or 252 field squadrons and 42 depot squadrons. All the cavalry regiments are armed and equipped in the same manner, the names "dragoons," "hussars," and "uhlans," merely referring to the ancient employments of the different regiments.

In time of war additional units are formed in each cavalry regiment. From the regimental staff are formed 1 section of staff cavalry and 1 telegraph patrol, and from the ersatz cadre, 1 ersatz squadron, 1 reserve squadron, and 1 section of staff cavalry.

The sections of staff cavalry are intended for duty at the headquarters of the higher tactical units (divisions, corps, and armies) and as escorts to the field supply magazines.

Reserve squadrons are for employment as army corps or garrison troops. In exceptional cases they may perform the duties of staff cavalry.

The pioneer detachment or section of each cavalry regiment is directly subordinate to the regimental commander. This section executes the necessary pioneer work when the

cavalry is detached for prolonged operations. When necessary, the pioneer sections of several regiments may be united.

The object of the telegraph sections is to facilitate the transmission of orders and information by telegraph.

The ersatz cadre keeps the lists of the men who are on "unlimited leave," etc., and in war time, provides for supplying the losses of the field squadrons both in men and horses.

(b) STRENGTH.—PEACE FOOTING.

The regiment (staff, 6 field squadrons, ersatz cadre, and pioneer section) consists of 38 combatant officers, 5 noncombatant officers, 1,039 rank and file (including 1 cadet), 25 officers' horses, and 873 troop horses. The men of the pioneer section are, in time of peace, counted in the strength of the field squadrons.

The squadron consists of 5 officers (1 captain, 2 first lieutenants, and 2 second lieutenants), 166 rank and file, 4 officers' horses, and 145 troop horses. Seven private horses, in all, are required to be kept in addition to the public horses designated as "officiers reitpferde" (officers' saddle horses).

The ersatz cadre consists of 2 officers, 21 rank and file, 1 officer's horse, and 2 troop horses.

At present there are borne on the rolls of every cavalry regiment 1 first sergeant, 2 corporals, 1 farrier, 41 privates, and 53 horses as supernumeraries, nearly all of whom are attached to the ersatz cadre.

(c) STRENGTH.—WAR FOOTING.

The regiment (staff, pioneer section, telegraph patrol, and 2 divisions of 3 squadrons each) consists of 36 combatant officers, 5 noncombatant officers, and, approximately, 1,100 rank and file, and 1,000 horses, of which about 60 are draft horses.

The field squadron consists of 5 officers, 166 rank and file, 150 public horses, and 11 private horses.

The reserve squadron has about the same strength as the field squadron.

The ersatz squadron numbers 11 combatant officers, 3 noncombatant officers, about 333 rank and file, 302 public horses, and 13 private horses.

A pioneer section consists of 1 officer, 27 rank and file, and 26 public horses.

A telegraph section consists of 2 noncommissioned officers and 2 privates.

Each section or platoon of staff cavalry consists of 1 officer and 43 men.

X.—THE FIELD ARTILLERY.

(a) GENERAL.

The field artillery is grouped in 14 brigades, each comprising 1 corps artillery regiment and 3 divisional artillery regiments; total, 14 corps and 42 divisional artillery regiments. There are 16 horse batteries organized in 8 divisions of 2 batteries each, and attached in time of peace 1 each to 8 of the 14 corps artillery regiments. There are also 14 mountain batteries; 3 of these form a division, which is under the orders of the artillery director of the 14th corps in time of peace and stationed in the Tirol. The remaining mountain batteries are attached 1 each to 11 of the 14 corps artillery regiments, and stationed in the occupied provinces with the 15th corps, for which no field artillery is provided. Corps artillery regiments therefore contain as integral parts over and above the field batteries, ammunition park cadres, and ersatz depot cadres, 2 each 1 horse artillery division, 5 each 1 mountain battery, 6 each 1 mountain battery and 1 horse artillery division.

On mobilization each artillery regiment forms an ersatz battery, the mountain battery division forms 3 additional mountain batteries and 4 narrow-gauge batteries, while 13 additional mountain batteries are also formed by 12 of the corps artillery regiments. The horse artillery divisions are detached and become independent of the regiment (being attached to cavalry divisions). From the ersatz depot cadre and ammunition park cadre are formed—from the former (in addition to the ersatz battery), the ersatz depot; and from the latter, artillery and infantry ammunition columns which supply the corps or division according to the category (corps or division) to which they belong. From the ammunition park cadre of the corps artillery regiment there is also formed an escort detachment for the reserve ammunition column of the corps ammunition park.

There are therefore in existence in time of peace 224 field, 16 horse, and 14 mountain batteries, which may be increased on mobilization by 56 field, 16 mountain, and 4 narrow-gauge batteries.

(b) ARMAMENT.

The field and horse batteries are armed with 90-mm. guns; the mountain batteries with 70-mm. guns. All these pieces are of steel bronze.

(c) THE CORPS REGIMENT.—PEACE FOOTING.

The organization of a corps regiment calls for a staff, 4 field batteries, the ammunition park, and the ersatz depot cadre.

(d) THE DIVISIONAL REGIMENTS.—PEACE FOOTING.

The organization of a divisional regiment calls for a staff, 4 field batteries, the ammunition park cadre, and the ersatz depot cadre.

(e) STRENGTH.—PEACE FOOTING.

The corps artillery regiment (including staff, 4 field batteries, the ammunition park cadre, and the ersatz depot cadre) consists of 26 combatant officers, 5 noncombatant officers, 467 rank and file, 33 officers' horses, and 166 troop horses (saddle and draft).

The division artillery regiment (including staff, 4 batteries, the ammunition park cadre, and the ersatz depot cadre) consists of 23 combatant officers, 2 noncombatant officers, 432 rank and file, 30 officers' horses, and 162 troop horses (saddle and draft).

The field battery consists of 4 combatant officers, 101 rank and file, 5 officers' horses, 39 troop horses (saddle and draft), and 8 guns (4 only are horsed).

The horse battery consists of 5 combatant officers, 122 rank and file, 11 officers' horses, 105 troop horses (saddle and draft), and 6 guns (all horsed).

The ammunition park cadre (corps regiments) consists of 3 officers, 17 rank and file, and 7 horses.

The ersatz cadre (corps regiments) consists of 3 officers, 33 rank and file, and 7 horses.

The ammunition park cadre (division artillery) consists of 2 officers, 9 rank and file, and 4 horses.

The ersatz depot cadre (division artillery) consists of 1 officer, 10 rank and file, and 3 horses.

The mountain battery division (staff, 3 batteries, and an ersatz cadre) consists of 17 combatant officers, 1 noncombatant officer, 274 rank and file, 1 officers' horse, 61 animals, and 12 guns.

The mountain battery (mountain battery division) consists of 4 officers, 86 rank and file, 20 animals, and 4 guns.

The ersatz cadre of the mountain battery division consists of 3 officers, 11 rank and file, and 3 horses.

(f) STRENGTH.—WAR FOOTING.

The corps artillery regiment (staff and 4 field batteries) consists of 24 combatant officers, 4 noncombatant officers, 810 rank and file, 37 officers' horses, and 553 troop horses (saddle and draft).

The divisional artillery regiments are weaker by 3 rank and file.

The field battery consists of 5 officers, 195 rank and file, 5 officers' horses, 136 troop horses (saddle and draft), and 8 guns.

The horse battery consists of 5 officers, 187 rank and file, 5 officers' horses, 218 troop horses (saddle and draft), and 6 guns.

The mountain battery of the corps artillery regiment consists of 3 officers, 110 rank and file, 1 officers' horse, 68 riding and pack animals, and 4 guns.

The mountain battery of the mountain battery division consists of 3 officers, 101 rank and file, 1 officers' horse, 53 riding and pack animals, and 4 guns.

The divisional ammunition park consists of 9 officers, 414 men, 428 horses, and 84 wagons, to which 60 requisitioned two-horse wagons may be added.

The corps ammunition park consists of 9 officers, 420 men, 436 horses, and 86 wagons, to which 62 requisitioned two-horse wagons may be added.

The cavalry ammunition park consists of 2 officers, 127 men, 128 horses, and 20 wagons, to which 7 requisitioned two-horse wagons may be added.

The army ammunition park consists of 21 officers, 486 men, 611 horses, and 141 wagons, to which 131 requisitioned two-horse wagons may be added.

The army ammunition field depot consists of 14 officers, 304 men, and 3 horses.

XI.—THE FORTRESS ARTILLERY.

(a) GENERAL.

The fortress artillery is grouped into regiments and battalions distributed in various garrisons and fortresses, and is organized into 6 regiments, three of which have 3, and three have 2 battalions each; and 3 independent battalions; in all 18 battalions.

Each battalion consists of the battalion staff, 4 field companies, and 1 ersatz company cadre.

In time of war, the fortress artillery furnishes mobile siege batteries, siege artillery parks, and teams for the sortie batteries of the fortresses; also electric search-light detachments.

(b) STRENGTH.—PEACE FOOTING.

The 3-battalion regiments consist of 67 officers and 1,285 rank and file each.

The 2-battalion regiments consist of 47 officers and 860 rank and file.

The regimental battalions consist of 20 officers and 425 rank and file.

The independent battalions consist of 22 officers and 429 rank and file.

The cadre for a mobile siege battery group consists of 22 horses.

The four cadres of electric search-light detachments number altogether 4 officers and 38 men.

(c) STRENGTH.—WAR FOOTING.

The 3-battalion regiments consist of 107 officers and 3,631 rank and file each.

The 2-battalion regiments consist of 75 officers and 2,424 rank and file each.

The 3 independent battalions consist of 36 officers and 1,211 rank and file each.

XII.—THE TECHNICAL ARTILLERY.

The technical artillery consists of 275 officers and 1,417 rank and file (91 masters, 438 noncommissioned officers, 878 privates, and 10 officers' servants), which constitute the personnel of the various establishments of the technical artillery. These establishments are the artillery workshops and depots, the powder factory, the ammunition factory, the artillery matériel depot with its branches, and, in war, the "field matériel companies" and "field matériel sections."

The officers are divided into two classes—"the artillery engineers" and "artillery matériel officials."

XIII.—THE ENGINEERS.

There is an engineer staff in the Austro-Hungarian army, but no engineer troops, properly speaking. The engineer staff is charged with the direction of the service of all military constructions and with cooperating in the preparation and execution of siege operations, and the defense of fortified places. It forms, like the general staff, a special service for promotion, the lowest grade being captain, first class.

The engineer staff is recruited from officers who have passed the higher engineer course in Vienna with the standing of at least "good," and who have in addition been on trial in the engineer staff with regard to their fitness for practical service. Before transfer to the engineers, such officers are attached thereto as probationers.

The inspector general of engineers selects from these qualified officers such as he desires for transfer to the engineer staff. In making these selections, he is bound to take into account neither the rank of the officer nor the length of his detail on the engineer staff.

The head of the engineer staff is the inspector general of engineers, already mentioned. He is at present a lieutenant field marshal, and is, moreover, one of the immediate subordinates of the war minister.

Besides the head of the corps, the peace establishment of the engineer staff consists of 2 other general officers (ranking as brigade commanders), 43 field officers, including 8 colonels, and 60 captains first class; the number of detailed or attached officers is 46, making in all, 146.

Special employments in peace.—In each corps district, an engineer staff officer is attached to the staff of the corps commander for the purpose of preparing and supervising matters relating to the construction of military works and buildings.

Officers of the engineer staff are also employed in the eighth section of the war ministry, on the technical military committee, in the military educational establishments, and in the engineer and fortification directions established to carry on the construction of fortifications.

For the purpose of obtaining practical instruction with troops, engineer staff officers are also assigned from time to time to duty with various units of the combatant arms. They may also be employed on civil-engineering duty.

Special employment of engineer staff officers in time of war.—To the military staff at the headquarters of each field army, a general or colonel is assigned as chief engineer officer. To the administrative "staff" of each field army, and to each general headquarters of the lines of communication service, a field officer is assigned for the supervision, etc., of the engineer service. A second field officer is disposable as a reserve officer or substitute, or for duty with the administrative staff of each field army.

To the headquarters of each army of investment, a general or colonel is assigned as chief engineer of the siege. He is assisted by a detail of as many officers of the engineer staff as are necessary.

XIV.—THE TECHNICAL TROOPS.

The technical troops, who execute the technical work necessary for an army in the field, are divided into—

(1) The pioneer troops, who are charged with the construction of emergency and semi-permanent bridges, flying bridges and ferries, and all structures in or under water, with the repair and destruction of communications, with the construction of such fortifications and execution of such technical works as are necessary in camp or on the march.

(2) The railway and telegraph regiment, which is intrusted with the service of the railways and telegraphs in the field.

1.—*The Pioneer Troops.*

(a) GENERAL.

The pioneer troops consist of 15 battalions (one for each army corps). Each battalion is divided into the battalion staff, 5 companies, the reserve equipage, and the ersatz company cadre.

In war the 5th company forms on mobilization three companies (5th, 6th, and 7th) intended principally for service in the fortified places. From the reserve equipage are created 4 bridge trains (3 normal and 1 light), a pioneer tool column, and the reserve equipage column. The equipment for these bridge trains is assigned, in time of peace, for administrative purposes, to the respective pioneer battalions.

On mobilization a light bridge train is assigned to each army corps. Each of these bridge trains may be subdivided into 2 divisional bridge trains; so that such an equipage may be assigned to each division in case of necessity.

The bridge trains are numbered from 1 to 60. All those whose numbers are divisible by 4 are light bridge trains. Each bridge equipage has matériel sufficient for a bridge 53 meters long.

Direction (Leitung) of the pioneer service.—The pioneer troops and the pioneer service are under the inspector general of pioneers, who has the same powers as the inspectors general of the other arms.

(b) STRENGTH.—PEACE FOOTING.

The battalion (staff, 5 companies, reserve equipage, and ersatz company cadre) consists of 30 combatant and 2 noncombatant officers and 562 rank and file (including 2 cadets).

A company numbers 5 officers and 107 or 108 men; the reserve equipage numbers 1 officer and 9 men, and the ersatz company cadre 2 officers and 7 men.

(c) STRENGTH.—WAR FOOTING.

Field battalion (staff and 4 companies), 24 officers (combatant and noncombatant), 945 men, and 138 horses.

Field company, 5 officers and 233 men.

Reserve equipage column, 1 officer and 27 men.

Pioneer tool column, 1 officer and 32 men.

Normal bridge train, 1 first sergeant and 15 men of the pioneer troops and 1 officer and 72 men of the train troops; in all, 1 officer, 88 men, and 110 horses.

Light bridge train, 1 first sergeant and 23 men of the pioneer troops and 1 officer and 74 men of the train troops in all, 1 officer, 97 men, and 110 horses.

*2.—The Railway and Telegraph Troops.**(a) GENERAL.*

There is one railway and telegraph regiment, which in peace consists of a regimental staff, 3 battalions (each of 4 companies), besides an ersatz battalion cadre, a telegraph ersatz cadre, and a telegraph school.

On mobilization the battalion units are broken up, and there are formed—

Twelve railway companies;

Three field telegraph directions;

Field telegraph sections, comprising 8 cavalry telegraph sections, 14 corps telegraph sections, 3 army telegraph sections, and 2 independent field telegraph sections;

Three mountain telegraph sections;

A field telegraph section for the headquarters of the commander in chief;

A number of fortress telegraph sections;

One ersatz battalion, consisting of a staff, 3 railway companies, and a telegraph ersatz company.

The telegraph school is broken up.

Direction, etc.—For military, technical, and scientific purposes, and for all matters relating to field service, the regiment is directly subordinate to the chief of the general staff; for technical administrative purposes, it comes directly under the war ministry.

Appointment of officers, etc.—The active officers are chiefly taken from the pioneer troops. A few cadets (pupils) of the engineer section of the technical military academy are appointed directly to the regiment. The reserve officers are recruited from the officers of the other arms of the service.

The subaltern officers and cadets of the regiment form a special line for promotion. The captains and field officers are arranged for this purpose in the infantry line.

(b) STRENGTH.—PEACE FOOTING.

The regiment (staff, 3 battalions, ersatz cadres, telegraph cadres, and telegraph school) consists of 83 combatant officers, 5 noncombatant officers, 1,451 rank and file, and 4 horses.

The battalion consists of 22 officers, 470 rank and file, and 1 horse.

The company consists of 5 officers and 117 rank and file.

The cadre of the ersatz battalion consists of 4 officers and 13 men.

The telegraph ersatz cadre consists of 2 officers and 8 men.

The school of telegraphy consists of 1 officer and 3 rank and file.

(c) STRENGTH.—WAR FOOTING.

The railway company consists of 5 officers and 243 rank and file.

XV.—THE TRAIN TROOPS.*(a) GENERAL.*

The train troops consist of 3 train regiments (Nos. 1 to 3).

In peace, each regiment consists of a regimental staff and 5 train divisions. Each train division consists of a division staff and a number of train squadrons and an ersatz depot cadre; in all, 15 train divisions (1 to each corps), forming 85 squadrons.

In addition, there are in the occupied provinces 5 mountain train squadrons. Besides, 4 of the train squadrons (Nos. 6, 11, 12, and 14) have each a special cadre for a mountain train squadron.

Out of the natives of the occupied provinces who are accepted for the train troops, 4 train detachments are formed, which are attached to the Bosnia-Herzegovinian infantry regiments; a part of their men are attached to the sections of the train troops stationed in the occupied provinces.

In war, the 85 train squadrons are in part attached to the headquarters of the higher commands, and in part are employed to furnish teams, etc., for the bridge trains.

To each headquarters staff of the higher commands, 1 train squadron is allowed. This squadron subdivides into 2, 4, or 6 platoons, and furnishes transportation for the headquarters baggage, military chest, provision wagon, etc., and for the divisional sanitary establishments and the telegraph section belonging to the army corps. It also furnishes an escort for the subsistence column.

One train squadron, forming 4 platoons, is required to horse 4 bridge equipages.

In addition, there are formed on mobilization—

- | | | |
|---|---|--|
| <p><i>First.</i>—Transportation detachments, comprising—</p> <ul style="list-style-type: none"> 14 train escort squadrons for field subsistence magazines, 14 train detachments for field bakeries, Train platoons for the lines of communication. | } | <p>(From the ersatz depot cadres of train divisions Nos. 1 to 14).</p> |
| <p><i>Second.</i>—Train reserve establishments, comprising—</p> <ul style="list-style-type: none"> 15 corps train parks, 15 depots for sick horses. | } | <p>(From the ersatz depot cadres of the train divisions).</p> |
- Army train depots (from the depot of train matériel*).
- Also, mountain division train parks (from the cadres for mountain train squadrons).

- Third.*—Ersatz units (from the respective ersatz depot cadres), comprising—
- 1 ersatz depot for each train division.

Direction (Leitung), etc.—In time of peace the train divisions are attached to the artillery brigades, and the supervision of the military instruction of the train troops is intrusted to the respective artillery brigadiers. The “direction” of the entire train service, and the inspection of the train troops, establishments, and of the service of train matériel, are intrusted to an inspector general of the train, whose powers and functions are similar to those of the inspectors general of the other arms.

In time of war each regimental commander is assigned as “train inspector” of that army with which the greater part of his regiment is serving.

Appointment of officers, etc.—The officers of the train are obtained partly by the promotion of cadets assigned to this branch and partly by the transfer of subaltern officers from the cavalry and field artillery. On mobilization, additional officers may be drawn from the reserve and retired lists, and from the category of officers “*ausser Dienst*.”†

* The depot of train matériel is at Klosterneuberg. It has branches at Budapest and Sarajevo.

† “*Ausser Dienst*” means literally “out of service.” The term has no English equivalent. “Waiting orders” conveys an idea somewhat similar. The officers of the unassigned list of the United States Army, after the reduction of the military establishment in 1870, would probably have been designated by German or Austrian officers as “*ausser Dienst*.”

(b) STRENGTH.—PEACE FOOTING.

The total piece establishment of the train troops (including the units stationed in the occupied provinces) amounted in 1895 to 417 officers and officials, 4,236 men, and 2,973 public horses and pack animals.

The staff of a regiment numbers 4 officers and officials, 6 men, and 4 public horses.

Staff of a division, 4 officers and officials, 8 men, and 4 public horses.

A train squadron, 3 officers, 27 men, and 18 horses.

Cadre for mountain train squadron, 1 officer, 15 men, and 10 horses and pack animals.

Ersatz depot cadre, 6 officers, 44 to 61 men, and 10 horses.

The establishments of the service of train matériel number 10 officers and officials, and 130 men.

(c) STRENGTH.—WAR FOOTING.

In 1895, it was officially stated that the peace strengths of the various train units vary from $\frac{1}{4}$ to $\frac{1}{14}$ of the war strengths. No recent official statement of the total war strength of the train has been published. In 1889, the war strength was stated to amount to 974 officers and officials, 37,943 men, and 47,000 animals. It is known, however, that the war strength has been considerably increased, and the above figures are estimated to be about 75 per cent of the present war establishment.

XVI.—THE SANITARY SERVICES.

In the direction and execution of the sanitary service of the forces are employed the various categories of military, landwehr, and landsturm surgeons, who have the status of officers and, taken together, form the corps of medical officers.

In the execution of the sanitary service, the corps of medical officers is assisted by the sanitary troops and the apothecary personnel. To the sanitary service belong also the military sanitary establishments and the apothecary establishments.

1.—The Corps of Medical Officers.

The corps of medical officers consists of doctors of medicine and surgery, and is divided into: (a) The military medical corps (for the army); (b) the imperial royal (Austrian) and royal Hungarian landwehr medical corps (for the landwehr), and (c) the imperial royal (Austrian) and the royal Hungarian landsturm surgeons. The surgeons form in each part of the forces a special service for promotion, etc., with the following rank classes: General staff surgeon (v class, corresponding to general-major or general of brigade); principal staff surgeon, first class (vi class, corresponding to colonel); principal staff surgeon, second class (vii class, lieutenant colonel); staff surgeon (viii class, major); regimental surgeon, first and second class (ix class, captain first or second class); over-surgeon (x class, lieutenant), and assistant surgeon (xi class, second lieutenant).

Establishment.—The establishments of surgeons in peace are as follows (1895): For the army, 1,236; for the Austrian landwehr, 121; for the Hungarian landwehr, 147. All with the rank and status of officers.

In war, the allowance of surgeons is from 2 to 3 per thousand men. It is calculated that 1 surgeon will be required for every 100 sick.

Recruitment.—To the active list of the army and landwehr medical corps are admitted doctors of medicine and surgery (graduates in medicine and surgery), provided that they are not over 32 years of age, that they are fit for active service, that they bear a good

character, and that they are not delinquent with regard to their obligation to service and enrollment. They must in addition show that they have received special military medical instruction (from two to six months) in one of the large military sanitary establishments. Such qualified persons may be admitted to the corps as over-surgeons.

In case of mobilization, this proof of special military-medical training is dispensed with. Every civilian surgeon who is no longer liable to military or landsturm service, and who volunteers for the purpose, may be appointed an over-surgeon for the duration of the war, provided he possesses the necessary professional qualifications. Distinguished civilian surgeons (for instance noted operators, university professors, etc.) who volunteer for service with armies in the field, etc., may be appointed consulting surgeons, with grades from staff surgeon upward.

Graduated physicians who have performed the legal amount of service as one-year volunteers may be appointed assistant surgeons in the reserve or in the nonactive landwehr.

One-year volunteer medical students, etc., must serve a half year in the ranks; the second half year's service, after receiving the degree of doctor, is performed in some hospital with the rank of substitute assistant surgeon. This grade is assimilated to that of substitute cadet officer.

Landsturm surgeons are appointed only on the calling out of the landsturm. They are drawn from the military and landwehr surgeons of the retired list and of the category "*ausser Dienst*," and from the civilian surgeons liable to landsturm service. They are appointed only for the duration of the war.

Employment of medical officers in peace and in war.—The military and landwehr medical officers are in peace and in war assigned to duty with the different troop units, establishments, higher staffs, and authorities. The senior with each unit bears the title of chief surgeon, and acts as medical advisor of the commanding officer. In the military sanitary establishments the senior surgeon commands, and bears the title of commandant.

As a general rule, only regimental, over, and assistant surgeons are assigned to duty with the troop units and establishments (sanitary establishments are excepted).

In the army each battalion has in peace 1 medical officer, in war 2 medical officers; each cavalry regiment in peace and war 3 medical officers (on account of the frequency of squadrons being on detached service); each corps artillery regiment, in peace 2, in war 4; each divisional artillery regiment, in peace 1, in war 2; each horse battery division, in war only, 1.

The rules for the assignment of surgeons to the landwehr and landsturm troop units are similar to the above.

Direction, etc., of the sanitary service.—In each army division, both in peace and in war, a staff surgeon is assigned as divisional chief surgeon. He discharges in addition, the duty of commandant of a military hospital or of the direction of a section of a garrison hospital.

In all large garrisons of the army in which the headquarters of an army division does not happen to be located a staff surgeon is assigned as garrison chief surgeon. He also acts as commandant of the military hospital at the station.

In each military territorial command (corps district) a general staff surgeon or a principal staff surgeon, first class, is appointed as medical director. During war these officers discharge the same duties in their respective army corps, and bear then the title of corps chief surgeons.

An army chief surgeon is appointed on the headquarters staff of each army in field, and a medical director on the administrative staff of such an army.

Chief of the military and landwehr medical corps.—A general staff surgeon is placed at the head of the army medical corps. He bears the title of chief of the army medical corps

and has powers and functions similar to those possessed by the inspectors general of the various arms and branches of the service.

The chief of the medical corps of the royal Hungarian landwehr is also a general staff surgeon.

2.—*The Sanitary Troops.*

(a) GENERAL.

For the sanitary auxiliary service (especially for the care of the sick and wounded) in the military sanitary establishments, there exists in the army a class of soldiers specially instructed and trained for this duty—the sanitary troops.

In peace, the sanitary troops consist of the headquarters and staff of the sanitary troops and 26 sanitary sections. From these are organized on mobilization, numerous field, reserve, and landsturm sanitary sections, besides sanitary sections for the hospitals of the Teutonic order.

The commandant of the sanitary troops is a colonel. He is placed directly under the war ministry and has the powers of a regimental commander, and inspects the sanitary sections with regard to their training and the condition of their matériel. Each sanitary section is assigned as a whole to one of the garrison hospitals and is divided into a main section and an instructional section. The first section (*stamm-abtheilung*) performs the sanitary auxiliary service in the hospital; the second (*instructions-abtheilung*) consists of the men undergoing instruction, besides the necessary cadres and the men for the time disposable.

The commander of a sanitary section, either in peace or in war, is a field officer or a captain.

The duties of the commander of a sanitary section include the military instruction of his section and the keeping of the rolls and lists of the active and reserve men, also the supervision of the supplies kept for mobilization and the field sanitary equipment. The commander of a field sanitary section acts as commander of the train.

(b) STRENGTH.—PEACE FOOTING.

The strength of a sanitary section in peace depends upon the size of the hospital to which it is attached and varies from 3 officers and 58 men to 5 officers and 270 men. The total strength of the sanitary troops in peace amounts to 83 officers (including 6 field officers) and 3,058 men.

The active officers of the sanitary troops are recruited from the cadets trained in the infantry cadet schools; the reserve officers, as in other arms and branches of the service. The officers and cadets of the sanitary troops form a special service for promotion.

(c) STRENGTH.—WAR FOOTING.

The total strength of the sanitary troops in war amounts approximately to 300 officers and 16,000 men.

XVII.—THE ECONOMIC ADMINISTRATION.

This is divided into several branches and services, viz: The subsistence service, the bedding service, the equipment service (*monturwesen*), the pay service, the accounting service, and the direction and “control” of the entire service of administration.

Subsistence establishments.—The service of the various subsistence establishments (magazines, field magazines, subsistence columns, field bakeries, *abattoirs*, etc.) is performed

by the subsistence branch, which consists of military officials and a suitable number of rank and file.

The highest grade in the hierarchy of these officials is "Ober-Verpflegsverwalter erster classe" (superior subsistence administrator first class), whose grade corresponds to the VI rank class or colonel; the lowest grade is "Verpflegs-Accessist," corresponding to second lieutenant.

The peace establishment of this branch, including the personnel of the military bedding magazines, amounts to 425 officials and 1,395 men.

Military bedding magazines.—The service of these magazines is discharged by the officials and men of the subsistence branch.

The equipment service.—The articles of clothing and equipment, the sanitary matériel, and the various kinds of bedding, which are necessary for the armed forces, are obtained, as a rule, from private manufacturers and dealers. For the reception and safe-keeping of such articles delivered for the service, and the issue of the same to the forces, there are kept up a number of "Montur-Verwaltungs-Anstalten" (equipment administrative establishments).

The service of these establishments is discharged by a special equipment administrative branch, which is composed of field officers and captains, a technical personnel, and the enlisted men.

The officers are recruited by transfers from the line and the retired list, and form, with regard to promotion, a service of their own.

The technical personnel consists of overseers of the first, second, and third classes. They are "Gagisten" (officials) without rank class, assimilated for some purposes to sergeant majors. They are recruited from the artificer noncommissioned officers.

The enlisted men of this branch consist of noncommissioned officers and lance corporals and master workmen of the first and second classes, and journeymen of the first, second, and third classes.

The peace strength of this branch is 5 field officers, 66 captains, 15 overseers, and 450 men.

The additional officers required in war are drawn for the most part from the pensioned list.

The pay service.—Each corps or unit which keeps its own accounts is allowed its own funds, which are kept in the military chest belonging to the unit and are administered by its chest commission. In addition, special military chests exist for the administration of the funds intended for the army, and from these chests the funds due the troops and establishments are from time to time replaced.

There is a pay office in the imperial war ministry, and military chests in Vienna, Budapest, Josephstadt, and Sarajevo.

In the other military territorial districts the service of the military chest is performed by the civil state chest which is located at the headquarters of the district, and which acts in this case as a military chest.

In war the administrative staff at the headquarters of each field army, each corps, and each independent infantry division receives a field chest.

The service of the military chests is discharged by the military chest officials.

The highest grade of this class of officials is "chest director first class (VI class, corresponding to colonel); the lowest grade corresponds to second lieutenant.

The peace establishment amounts to 33 officials.

The accountant service.—The accountant service is divided into (a) the accountant service of the troop units and (b) the "controle" (audit) of accounts.

(a) Each company has one noncommissioned officer for company accountant. Each unit, which keeps its own accounts, has an accountant office, to which are assigned one or more accountant officers (Truppen-Rechnungsführer) and accountant assistants (the latter are non-commissioned officers). These accountant officers form in the army, and also in both land-wehrs, a special corps for promotion, etc., whose members have the rank of officers and the following grades and titles: Second lieutenant accountant, lieutenant accountant, and captain accountant; captain accountants may be promoted to be accountant councilors. The peace establishment amounts to 528 of these officers. In war such additional officers as are necessary are appointed.

(b) For the service of the "control of accounts" there is kept up a special establishment of military officials, called the "military accounts control branch." These officials belong to the following rank classes: Ministerial councilor, (v class, corresponds to general of brigade), principal accountant councilor first class (vi, colonel), principal accountant councilor second class (vii, lieutenant colonel), etc., down to the lowest grade, assistant accountant (xii, substitute cadet officer). The peace establishment amounts to 618 persons. In war such increases are made as are found necessary.

These officials are employed in peace and in war in the auditing of the accounts of the troop units and establishments. Accounts-control sections exist for this purpose in the intendance with the headquarters of a division, a corps, an army, etc. There is also an accounts section in the war ministry composed of these officials.

Direction and control of the entire administrative service.—The direction and control of the whole administrative service of the army is performed by a particular establishment of officials known as the military intendantur.

To the higher staffs and authorities are attached, for the purpose of discharging the duties of the intendance service, intendance sections, which bear such designations as "intendance" of such a corps (or division).

The head of the military intendantur is an official of the iv rank class (corresponds to general of division), who bears the title of chief of the military intendantur. He is at the same time chief of the "economic section" of the war ministry.

The hierarchy of intendantur officials runs down to military under intendant (ix class, or second lieutenant).

The peace establishment comprises 214 officials. The war establishment depends on the requirements of mobilization.

XVIII—LOCAL TROOPS (BOSNIA-HERZEGOVINIAN).

(a) GENERAL.

All Bosnians and Herzegovinians are required to personally participate in the defense of their provinces as well as that of the monarchy in general. Service in the Bosnia-Herzegovinian regiments lasts for twelve years, of which three are with the colors and nine in the reserves. On mobilization the troops are raised to war strength by voluntary enlistments and the regular drafts on the classes of recruits liable for service. Substitution of service is permitted under certain conditions. Ministers of religion, doctors, veterinarians, apothecaries, and teachers are exempted from military service. The remaining military obligations are carried out in the same manner as in the imperial and royal forces.

Officers and noncommissioned officers from the grade of "zugsführer" (sergeant) upward belong as a rule to the imperial and royal army. The rank and file from "zugsführer" downward are taken from the men on the rolls of the country.

The troops consist of 4 regiments of infantry of 3 field battalions of 4 companies each (making 12 companies to the regiment) and the cadre of an ersatz battalion, which on mobilization for war forms an ersatz battalion of 4 companies. Every regiment has moreover a thirteenth field company which is attached to a field battalion. A fourteenth field company was added to each regiment on October 1, 1895.

There are, moreover, 4 Bosnia-Herzegovinian train organizations which are attached to the train troops of the regular army.

(b) STRENGTH.—PEACE FOOTING.

The field company has the same number of officers and rank and file as an Austrian company on the lower or higher peace establishment.

(c) STRENGTH.—WAR FOOTING.

The war strength, armament, equipment, and training are similar to those of the Austrian regular forces.

XIX.—THE LANDWEHR.

(a) GENERAL.

The landwehr serves as a support for the standing army and is composed of (a) men liable to military service who are directly enrolled in it and its reserve, and (b) men transferred from the active army after the completion of their service with the colors and the ersatz reserve.

For the duration of service in the landwehr, see "Conditions of Service," page 8.

The officers and men of the nonactive landwehr are called up for periodical practical trainings of 4 weeks' duration each until the entire 20 weeks' training has been completed.

The practical trainings of the landwehr occasionally take place during the grand maneuvers.

This places the landwehr on a footing which permits of its taking the field in case of war as troops of the first line, and available for service beyond the limits of the empire.

(b) INFANTRY.

There are 23 regiments of Austrian and 28 of the Hungarian landwehr infantry of 3 or 4 battalions of 4 field companies and the ersatz cadre each; over and above this every regiment has a reserve (ersatz) battalion cadre. There are also 3 Tyrolese rifle regiments of the same organization. The Hungarian landwehr infantry (Honved) regiments have an organization calling for 3 or 4 field battalions and the ersatz cadre battalion. Each battalion consists of the cadres of 4 field companies.

(c) STRENGTH.—PEACE FOOTING.

The Austrian regiment, including the ersatz battalion cadre, calls for 53 or 67 officers and 669 or 886 rank and file, according to whether the regiment consists of 3 or 4 battalions.

The company calls for 3 officers and 54 rank and file.

The Hungarian regiment, including the ersatz battalion cadre, calls for 44 or 56 officers and 367 or 482 rank and file, according to whether the regiment consists of 3 or 4 battalions.

The company calls for 2 officers and 27 rank and file.

(d) CAVALRY.

There are 6 regiments of Austrian (lancers) and 10 regiments of Hungarian (hussars) landwehr cavalry, a division (2 squadrons) of Tyrolese mounted riflemen, and a squadron of Dalmatian mounted riflemen.

Each lancer regiment consists of a regimental staff, a pioneer platoon cadre, 2 division staffs, 6 field squadrons, and an ersatz cadre. On mobilization a telegraph patrol is organized, and the ersatz cadre furnishes the ersatz squadron, and the staff platoon.

The hussar regiment consists of a regimental staff, 2 divisional staffs, 2 divisions of 3 squadrons each, and an ersatz cadre; on mobilization for war it consists of a regimental staff, 2 regimental division staffs, a pioneer platoon, a telegraph patrol, 2 regimental division staffs, a pioneer platoon, a telegraph patrol, 6 field squadrons, the ersatz squadron, and the staff platoon.

(e) STRENGTH.—PEACE FOOTING.

The lancer squadron calls for 3 officers, 43 rank and file, and 35 or 36 horses, counting private horses.

The ersatz cadre calls for 1 officer, 5 rank and file, and 3 or 4 horses.

The hussar squadron calls for 4 officers, 65 rank and file, and 50 or 51 horses.

(f) STRENGTH.—WAR FOOTING.

The war effectives of the Austrian and Hungarian landwehr regiments are in general the same as those of the active army.

XX.—TOTAL STRENGTH.—PEACE FOOTING.

Including officers and officials, the total peace establishment amounts to—

Austro-Hungarian army	317, 900
Troops of Bosnia-Herzegovina	4, 500
Total	322, 400
Add,	
Palace guards, gendarmerie, and the 2 military police corps	21, 000
Military sections of the horse-breeding establishments	5, 600
Grand total	349, 000

XXI.—TOTAL STRENGTH.—WAR FOOTING.

Active army and reserves, including troops of Bosnia-Herzegovina ..	877, 000
Austrian and Hungarian landwehrs	328, 000
Ersatz reserves, army and landwehr	481, 000
Total	1, 686, 000

(In which, however, officers are not counted.)

The landsturm are estimated at about 6,000,000.

The number of trained men is from 15 to 20 per cent of this number, say

Grand total

(To which must be added some 50,000 officers)

BELGIUM.

I.—AREA AND POPULATION.

The Kingdom of Belgium has an area of 29,455 square kilometers and had an absolute population, on December 31, 1894, of 6,341,958, or 215 per square kilometer.

II.—THE COMMAND OF THE ARMY.

The command of the army is vested in the King, who governs through responsible ministers; the sovereignty rests with the nation which has intrusted the King with the executive power. The King appoints and dismisses his ministers, declares war, makes treaties, confers decorations, etc. Nomination to the grade of officer is made by the King on the proposal of the minister of war. Rank is conferred by the King and constitutes the status ("l'état d'officier") of the officer. Officers can not be deprived of their rank, honors, or pensions except as provided by law. Rank is distinct from "emploi" (command), is conferred by the King, and may be revoked by him.

III.—THE WAR MINISTRY.

The war ministry consists of the minister's own office (cabinet), the secretariat, and 6 directions. The war minister is always a general officer, the present incumbent being a lieutenant general of the army. The personnel of the war office consists partly of officers and subofficers and partly of civilian functionaries and employees.

THE MINISTER'S "CABINET."

At present the staff of this office consists of 1 major of the general staff as chief (who is also chief of the secretariat), 1 captain of the general staff, and 1 lieutenant in charge of the records.

THE SECRETARIAT.

At the head of the secretariat is the chief of the minister's "cabinet." There are two bureaux:

1. Bureau of general information and records.
2. The forwarding bureau.

THE DIRECTIONS.

First direction deals with matters concerning military operations and instruction, and is divided into 2 subdirections of 3 and 4 bureaux respectively:

1. Subdirection of military operations:
 - (1) Bureau of organization and movements of troops.
 - (2) Bureau of mobilization.
 - (3) Bureau of military operations proper.

2. Subdirection of general instruction of the army:

- (4) Bureau of instruction, military educational establishments.
- (5) Bureau of historical and military geographical work.
- (6) Bureau of statistics and organization of foreign armies.
- (7) Bureau of library.

Second direction deals with personnel and recruitment and consists of the director's office (cabinet) and 2 subdirections of 3 and 2 bureaus respectively.

The director's office deals with officers' records, promotions, rewards, and confidential matters.

1. Subdirection of personnel:

- (1) Bureau of officers.
- (2) Bureau of noncommissioned officers and men.
- (3) Bureau of pensions and half pay.

2. Subdirection of recruitment:

- (4) Bureau of conscripts and volunteers.
- (5) Bureau of substitutes and bounty enlistments.

Third direction.—Artillery matériel:

- (1) Bureau of technical matters, arsenals, manufacture of arms and ammunition.
- (2) Bureau of accounts.

Fourth direction.—Engineer matériel:

- (1) Bureau of technical matters, fortifications, etc.
- (2) Bureau of accounts.

Fifth direction.—Military cartographical institute:

- (1) Bureau of general matters, astronomical and geodetical calculations.
- (2) Bureau of special matters, topographical work on the ground, lithography, zincography, photography, etc.

Sixth direction.—Administration: This direction consists of the director's office and 6 bureaus with several subdivisions.

In the director's office the budgets are prepared and laws for granting extraordinary and supplementary credits.

1. Bureau of pay and allowances:

- (1) Section of pay and allowances.
- (2) Section of examination of accounts, reimbursements.

2. Bureau of clothing and equipment:

- (1) Section of clothing and equipment.
- (2) Section of remounts, etc.
- (3) Section of control of execution of contracts for clothing, equipment, bedding, etc.

3. Bureau of provisions, forage, fuel, illuminating supplies, general transport.

4. Bureau of hospitals.

5. Bureau of general accounts, civilian personnel:

- (1) Section of general accounts.
- (2) Section of civilian personnel.

6. Bureau of purchase of all matériel needed in the war office, subscriptions to periodicals, advertisements.

The chiefs of these directions, subdirections, bureaus, and sections were in 1895 as follows: 1 general officer (major general), 3 colonels, 1 lieutenant colonel, 5 majors, 12 captains, 2 lieutenants, and 13 civilian functionaries.

Of the above officers 2 colonels, 1 major, and 2 captains belong to the staff corps; the remaining officers, in whom were included 1 major, 3 captains, and 1 lieutenant are "adjoint d'état-major" (*i. e.*, hold the certificate of qualification for staff duty) and belong to the line.

IV.—THE STAFF.

The following pertain to the staff:

- (1) The general staff, consisting of—
 - (a) The general staff proper.
 - (b) The corps of the general staff.
- (2) The general staff of the provinces and towns.
- (3) The military intendance.

(1) THE GENERAL STAFF.

(a) The general staff consists of all the general officers of the active and reserve sections. In 1895 the former numbered 9 lieutenant generals and 18 major generals, the latter 2 lieutenant generals and 4 major generals.

(b) The staff corps consisted in 1895 of 5 colonels, 5 lieutenant colonels, 10 majors, 16 captains, and 10 junior captains. This corps directs the entire business of the service under the orders of the general staff, and has charge of all matters pertaining to military operations and instruction (see first direction, War Ministry). The corps is recruited from captains of all branches of the service who have obtained the requisite certificate of qualification for staff duty from the war school. Before appointment to the staff they must serve in the arms other than their own for a specified time, and after appointment they must, subsequent to each promotion, serve a certain term with each of the three arms. The Belgian army list for 1895 shows the following officers as "adjoints d'état-major" (in possession of certificate of qualification for staff duty): 8 colonels, 10 lieutenant colonels, 25 majors, 55 captains, 29 junior captains, and 50 lieutenants. Many of these officers are employed on the various military, administrative, technical, and school staffs.

The budget for 1895 also recognizes as pertaining to the general staff the 79 authorized aids-de-camp to division and brigade commanders (a number of whom are furnished from the "adjoints d'état-major").

(2) THE GENERAL STAFF OF THE PROVINCES AND TOWNS.

(*Etat-major des provinces et des places*).

Besides being divided into four military districts presided over by lieutenant generals, the kingdom is also divided for administrative purposes into nine provinces, each with a military governor and staff. The budget for 1895 shows the "état-major des provinces" to consist of 5 major generals (but allots funds for the expenses of 9 such offices), while the "état-major des places" is shown to consist of 5 majors, 8 captains, 5 junior captains first class, 4 junior captains second class, 8 lieutenants, and 4 sublieutenants. (The first military district comprises 2 provinces, the second 1, the third, 3, and the fourth 3.)

(3) THE MILITARY INTENDANCE.*

The "intendance militaire" is the disbursing department of the army and consists of 1 chief intendant, 3 intendants of the first class, 6 intendants of the second class, 12 sub-intendants of the first class, and 13 subintendants of the second class.

* Under the administrative service, of which the intendance is the head, are classed the "officiers comptables des corps de troupe," quartermasters, paymasters, and clothing officers, numbering in all 153. These officers, as well as the surgeons, are included in the commissioned strengths of the regiments and battalions.

V.—AVAILABLE STRENGTH.

The registered number of young men available for military service in 1894 was 61,659, of which 13,300 were incorporated in the army, being about .02 per cent of the population, or 22 per cent of the total registered number, and giving a peace strength of 48,648 noncommissioned officers and men and 3,505 officers. There is also a militia, which on March 31, 1895, amounted to 43,359 men.

VI.—CONDITIONS OF SERVICE.

All Belgians are required to register, so as to be available for the conscription on attaining the age of 20 years. Exemption is, however, purchasable. The army is recruited partly by voluntary enlistment and partly by conscription. The total strength of the yearly contingent required is fixed by the budget. To ascertain the number required to be drawn by lot, the number of volunteers is subtracted.

The term of service for conscripts is 13 years—8 in the active army and 5 in the reserve; though, as a matter of fact, their service in the active army varies from 28 months to 36 months in the infantry, siege artillery, and train troops, and 4 years in the cavalry, after which they are sent on unlimited leave, the infantry only being recalled for 4 weeks' service. After 8 years' service in the active army they pass to the reserve, where they remain liable for 5 years longer.

Each regiment is notified every year from what province it is to draw its contingent of recruits, and a regiment never draws its recruits from the same province in two successive years. The reason for this is that there are two distinct populations—Walloon and Flemish—and were the regiments localized, they would consist exclusively of one of two races speaking separate languages—Flemish or French.

Volunteers are held for an active service of 8 years, but receive certain advantages, and once the period for which they enlist is terminated, they are no longer liable to further military service.

VII.—MILITARY EXPENDITURE.

The war budget for 1895 was \$9,115,322.

VIII.—ORGANIZATION.

In time of peace the field army is organized into 4 divisions of infantry, 2 divisions of cavalry, 2 brigades of field artillery, 2 brigades of fortress artillery, and the auxiliary services.

In time of war it is supposed that 2 army corps will be organized; they should consist of 2 divisions of infantry, 2 squadrons of cavalry, 1 regiment of artillery, 2 infantry supply columns, 2 artillery supply columns, 1 ambulance column, 1 bridge train, 1 section of field telegraphists, 1 engineer park, 4 field ambulances, and 5 columns of commissariat supplies.

IX.—THE DIVISION.

The normal division consists of 2 brigades of 2 regiments of infantry of the line, grenadiers or riflemen, of 3 battalions each; 1 battalion of carabineers; 1 company of engineer troops; 1 regiment of field artillery; 2 squadrons of cavalry; 1 company of train troops; 1 company of administrative troops; 1 section of field telegraphists; 1 administrative detachment; 2 artillery ammunition columns; 2 infantry ammunition columns; the commissariat equipage; 1 section of engineer park; 2 commissariat columns; 1 remount depot, and 2 field hospitals.

X.—THE INFANTRY.**(a) GENERAL.**

There are 14 regiments of infantry of the line, 3 of riflemen, 1 of grenadiers of 3 field battalions of 4 companies, 2 reserve (cadre) battalions, and a depot each; 1 regiment of carabineers of 4 field battalions of 4 companies, 3 reserve (cadre) battalions, and a depot. There are, moreover, 2 sedentary companies. In all 19 regiments or 58 battalions, and 2 sedentary companies.

(b) STRENGTH.—PEACE FOOTING.

1. The regiment of carabineers consists of 126 officers and 2,161 rank and file.
2. The regiment of grenadiers consists of 95 officers and 1,624 rank and file.
3. The regiment of infantry of the line or riflemen consists of 95 officers and 1,336 rank and file. (In the above figures the number of officers and men of the reserve battalions and depot are included in each case.)

(c) STRENGTH.—WAR FOOTING.

The line and rifle regiments consist of 64 officers and 3,040 rank and file.
The battalion consists of 20 officers and 1,004 rank and file.

XI.—THE CAVALRY.**(a) GENERAL.**

There are 8 regiments of cavalry, each of 1 depot and 5 field squadrons, viz, 2 regiments of chasseurs, 4 of lancers, and 2 of guides. They are distributed so as to give 2 squadrons (the fifth squadron of each regiment) to each of the four divisions of the army. The remaining squadrons (the first four of each regiment) are organized in 2 cavalry divisions.

(b) THE CAVALRY DIVISION.

The normal division consists of 2 brigades of 2 regiments of 4 squadrons each, 2 horse artillery batteries, 1 artillery ammunition column, 1 detachment of administrative troops, 1 ambulance column, and 1 platoon of train troops.

(c) STRENGTH.—PEACE FOOTING.

The regiment consists of 46 officers and 718 rank and file.
The field squadron consists of 5 officers and 140 rank and file.
The depot squadron consists of 6 officers and 13 rank and file.

(d) STRENGTH.—WAR FOOTING.

The regiment (4 squadrons) consists of 31 officers and 659 rank and file.
The squadron consists of 5 officers and 160 rank and file.

XII.—THE ARTILLERY.

The artillery consists of (1) the special staff, (2) 4 regiments of field artillery, (3) 4 regiments of fortress artillery, (4) 4 special companies, and (5) 1 regiment of train.

1.—The Special Staff.

The artillery staff is charged (1) with ordnance duties and the location and construction of all batteries, the reconnoissance for the purpose being made jointly with the engineer staff; (2) with the supply of arms and ammunition to the army, and (3) with the building of pontoon bridges and, if necessary, of emergency bridges, and with crossings by means of ferries and flying bridges. Personnel: 5 colonels, 5 lieutenant colonels, 12 majors, 15 captains, 25 storekeepers, and 108 noncommissioned officers.

*2.—The Field Artillery.**(a) GENERAL.*

There are 4 regiments of field artillery, numbered 1st, 2d, 3d, and 4th; the 1st and 3d comprising each 8 field batteries, 1 reserve (cadre) field battery, 1 battery which mobilizes 3 ammunition columns, and 1 depot battery. The 2d and 4th regiments comprise each 7 field batteries, 2 horse batteries, 2 reserve (cadre) field batteries, 1 battery which mobilizes 3 ammunition columns, and 1 depot battery. In all 30 field batteries, 4 horse batteries, 10 reserve (cadre) batteries, and 4 depot batteries.

The artillery is subordinate to an inspector general of artillery and, in time of peace, organized into 4 brigades, 2 of field and 2 of fortress artillery, each under the command of a major general.

There is one regiment of field artillery assigned to each infantry division, and two batteries of horse artillery to each cavalry division.

(b) ARMAMENT.

The 30 field batteries are armed with 6 guns each, of 87 mm. caliber.

The 4 horse batteries are armed with 6 guns each, of 75 mm. caliber.

These guns are of Krupp steel, model 1878.

(c) STRENGTH.—PEACE FOOTING.

The 1st and 3d regiments consist each of 60 officers and 740 rank and file.

The 2d and 4th regiments consist each of 67 officers and 887 rank and file.

The field battery consists of 4 officers and 86 rank and file.

The horse battery consists of 4 officers and 107 rank and file.

The reserve (cadre) battery consists of 3 officers and 18 rank and file.

The batteries for organizing ammunition columns consist of 4 and 6 officers and 13 and 14 rank and file respectively.

The depot battery consists of 2 officers and 15 rank and file.

(d) STRENGTH.—WAR FOOTING.

The field battery consists of 5 officers and 166 rank and file.

The horse battery consists of 5 or 7 officers and 180 or 183 rank and file.

*3.—Fortress Artillery.**(a) GENERAL.*

There are 4 regiments of fortress artillery, numbered 5th, 6th, 7th, and 8th. The 5th, 6th, and 7th consist each of 14 batteries, 2 reserve (cadre) batteries, and 1 depot battery. The 8th consists of 16 batteries, 2 reserve (cadre) batteries, and 1 depot battery.

Total, 58 batteries, 8 reserve batteries, and 4 depot batteries.

(b) STRENGTH.—PEACE FOOTING.

The 5th, 6th, and 7th regiments consist each of 60 officers and 969 rank and file. The 8th regiment consists of 68 officers and 1,103 rank and file.

The fortress battery consists of 3 officers and 67 rank and file.

The reserve (cadre) battery consists of 2 officers and 5 rank and file.

The depot battery consists of 2 officers and 15 rank and file.

4.—*Special Artillery Companies.*

There are 4 special companies, viz: 1 of pontoniers, 1 of artillery workmen, 1 of armorers, and 1 of artificers. Their strength on the peace footing is as follows:

Pontonnier company, 5 officers and 137 rank and file.

Company of artillery workmen, 4 officers and 175 rank and file.

Company of armorers, 4 officers and 130 rank and file.

Company of artificers, 4 officers and 102 rank and file.

5.—*The Artillery Train Regiment.* *

(a) GENERAL.

This regiment consists of a staff and 8 companies, 4 of which are detailed to the divisions, 1 to each; 2 are detailed for the service of the army corps, 1 for the service of the general headquarters of the field army, and 1 depot company.

(b) STRENGTH.—PEACE FOOTING.

The staff of the regiment consists of 8 officers and 4 rank and file. The company consists of 3 officers and 53 rank and file.

The depot company consists of 4 officers and 27 rank and file.

XIII.—ENGINEER TROOPS.

(a) GENERAL.

The engineer troops consist of (1) the special staff; (2) 1 regiment of sappers and miners of 3 battalions of 4 companies, a reserve battalion, and a depot, and (3) 5 special companies.

The staff consists of 52 officers, 50 storekeepers, 45 clerks, and 17 employees, and is divided into 4 "directions" stationed at Termonde, Antwerp, Namur, and Liege. The regiment of sappers and miners is broken up, detachments being stationed at Antwerp, Liege, and Namur, and one company assigned to each division.

(b) STRENGTH.—PEACE FOOTING.

The regiment of sappers and miners consists of 81 officers and 1,028 rank and file.

The company of sappers and miners consists of 4 officers and 81 rank and file.

The reserve (cadre) company consists of 3 officers and 6 or 7 rank and file.

The depot consists of 8 officers and 20 rank and file.

The following are the five special companies:

One company of field telegraphers, consisting of 4 officers and 81 rank and file.

One company of fortress telegraphers, consisting of 4 officers and 81 rank and file.

One railway company, consisting of 4 officers and 81 rank and file.

One fortress pioneer company, consisting of 4 officers and 81 rank and file.

One company of workmen, consisting of 3 officers and 81 rank and file.

* Though classed for budgetary and some other purposes with the artillery, the train regiment appears in the army list as an independent arm.

XIV.—PONTONIER TROOPS. (See Artillery and Engineers.)

XV.—TRAIN TROOPS. (See Artillery.)

XVI.—RAILWAY AND TELEGRAPH TROOPS. (See Engineers.)

XVII.—ADMINISTRATIVE BATTALION.

This battalion consists of a staff, 3 officers and 23 men, and 4 companies of 6 sections each, as follows: First section, bakeries; second section, slaughterhouses; third section, forage; fourth section, hospitals; fifth section, veterinary infirmaries, and sixth section, relief establishment.

The bakery sections number altogether 22 officers, 2 clerks, and 206 men; the slaughterhouse sections, 12 officers, 11 clerks, and 150 men; the forage sections, 19 officers, 4 clerks, and 257 men; the hospital sections, 22 officers, 20 clerks, and 384 men, and the veterinary infirmary section, 13 men.

XVIII.—THE SANITARY SERVICE.

The sanitary service of the army is under an inspector general and performed by (a) the medical corps, and (b) the apothecary corps.

(a) The medical corps is composed as follows: 1 inspector general; 4 chief surgeons, first class (1 to each military district); 8 chief surgeons, second class; 15 regimental surgeons, first class; 14 regimental surgeons, second class; 14 regimental surgeons, third class; 28 battalion surgeons, first class; 48 battalion surgeons, second class, and 18 assistant surgeons.

(b) The apothecary corps consists of 1 chief pharmacist; 2 principal pharmacists; 8 pharmacists, first class; 8 pharmacists, second class; 9 pharmacists, third class, and 9 pharmacists, fourth class.

XIX.—THE VETERINARY SERVICE.

The veterinary corps consists of 1 veterinary in chief; 3 principal veterinarians; 10 regimental veterinarians, first class; 5 regimental veterinarians, second class; 9 veterinarians, second class and 8 of the third class.

XX.—TOTAL STRENGTH.

(a) PEACE FOOTING. (See Available Strength.)

(b) WAR FOOTING.

In case of war the forces are to be formed into two armies in accordance with the plan of national defense based on the geographical and topographical conditions as well as the political situation of the kingdom among the states of Europe. Although the neutrality of Belgium is guaranteed by the principal powers of Europe, still the government is aware that in order to maintain its neutrality as well as its existence, it must be prepared to defend it, or be at the mercy of any power that chooses to violate it. Any war waged by Belgium would therefore be a defensive one, with the ultimate object of preventing the foreigner from setting foot on Belgian soil. In carrying out this plan the task of the field army is to defend the line of the Maas, of the army of Antwerp to garrison and defend the fortified places, more particularly the fortress of Antwerp. The latter is one of the greatest of modern fortresses, and designed as a "réduit," to which the field army, if driven from the field, may fall back, there to maintain itself and the autonomy of the government with the

assistance of the works and garrison, until succored by the powers that have obligated themselves to maintain the neutrality of Belgium.

In calculating on a total strength of the army of 130,000 men, General Pontus, in 1892, assigned 74,000 men to the field army and 56,000 men to the army of Antwerp. In a discourse delivered before the Belgian Chamber in February, 1894, General Brialmont states that both of these figures could not be reached with the present organization, and, moreover, that if the forces should reach that strength, they would still be insufficient. He demands for the army of Antwerp the following troops:

	Men.
Garrison of Antwerp.....	51,240
Garrison of Termonde.....	9,820
Garrison of Dienst (since declassified).....	4,920
Garrison of Liege.....	15,320
Garrison of Namur.....	18,020
Garrison of Huy.....	2,500
Total	96,820

For the field army he demands a force consisting of 6 mixed divisions, a reserve division, and a cavalry division, organized as follows: The infantry division to consist of 4 regiments of 3 battalions of 4 companies, 1 regiment of cavalry of 4 squadrons, 1 regiment of field artillery of 9 batteries, 1 pioneer battalion of 3 companies inclusive of a bridge company, 8 ammunition columns, 1 train company, and 1 administration company. The reserve division would differ from the active division in having but 4 batteries and 4 ammunition columns. The cavalry division to consist of 6 regiments of cavalry of 4 squadrons and 3 horse batteries.

In view of the prominence of the Belgian general Brialmont, it is safe to assume that in case of mobilization his scheme would be adhered to as much as possible. At present, however, the forces available would be approximately as follows:

The mobilized army would consist of 8 contingents of 13,300 men each, giving a field army of 106,400 men, and a reserve of 5 contingents with a total of 66,500 men, in all 172,900 men. Considerable deductions would have to be made from these figures before they could be accepted. The *Annuaire Statistique de La Belgique* gives the following data for 1894: "Officers, 3,505; standing army, 48,648 men; first 8 contingents, 61,478 men; 9th and 10th contingents, 22,267 men; 11th, 12th, and 13th contingents, 30,689 men; total, 163,082 men;" thus making an allowance of some 10,000 men for deductions to be made. It is believed, however, that even these figures can not be reached. General Brialmont, in his discourse above referred to, stated that even from the available strength of 140,521 men given by General Pontus on November 1, 1892, large deductions would have to be made, and the total of effectives would dwindle down to 118,844 and that of combatants to 111,009 men at a conservative estimate. Since then the increase of the Belgian army, as advocated by General Brialmont, has not been made.

In addition, the civic guard would be available. This body of militia consists of the active and inactive part. The former receives some slight training in time of peace and amounted to 43,359 men in 1895; the inactive part is estimated at 100,000 men, who undergo no training in time of peace.

COLOMBIA.

I.—AREA AND POPULATION.

The Republic of Colombia has an area of 1,330,875 square kilometers, with a population of 3,320,530, or 2 per square kilometer.

II.—AVAILABLE STRENGTH.

The army may be increased or reduced by executive order; the last report of the minister of war rendered at the end of 1892 showed 5,000 men. Since then this force has probably been doubled.

III.—CONDITIONS OF SERVICE.

The soldiers are all Indians, and are recruited by impressment. In time of war all able-bodied Colombians are liable to serve.

IV.—ORGANIZATION.

The army is organized into 4 divisions, 1 column of engineers, and 1 independent military jurisdiction of the Isthmus of Panama

The 1st division consists of 4 battalions of infantry of from 2 to 4 companies each and 1 battalion of artillery of 6 mountain batteries.

The 2d division consists of 2 battalions of infantry of 4 companies each

The 3d division consists of 1 battalion of infantry of 6 companies and 1 battalion of artillery of 6 coast batteries.

The 4th division consists of 2 battalions of 4 and 6 companies respectively.

The independent Panama command consists of 1 battalion of infantry.

V.—THE INFANTRY.

(a) GENERAL.

There are 10 battalions of infantry of from 2 to 6 companies each.

(b) STRENGTH.

The company consists of 80 rank and file.

VI.—THE CAVALRY.

The cavalry consists of 1 squadron.

VII.—THE ARTILLERY.

The artillery consists of 1 battalion of 6 mountain batteries and 1 battalion of 6 coast batteries.

VIII.—THE ENGINEER TROOPS.

There is a column of engineers.

IX.—TOTAL STRENGTH.—PEACE FOOTING.

The peace establishment is about 5,000 men.

X.—TOTAL STRENGTH.—WAR FOOTING.

In time of war 1 per cent of the population is required to serve in the army, or about 30,000 men.

ENGLAND.

I.—AREA AND POPULATION.

The United Kingdom has an area of 120,973 square miles, with an absolute population of 38,609,500, or 310 per square mile.

II.—CONDITIONS OF SERVICE.

Enlistment is voluntary. The bars to enlistment are physical disability before presentation of the recruit for enlistment; after presentation and enlistment, soldiers of three months or less service may claim their discharge on payment of £10 (\$50) (in a few cases, £8). After that period the discharge becomes a matter of indulgence, and £18 (\$90) is the purchase money up to the completion of 12 years' service, after which period it may be granted "free." Discharges by purchase are almost invariably allowed, excepting when applicants for this indulgence are under orders for foreign service, or when the corps to which they belong is inconveniently below its strength. In the case of bandsmen who have received a musical education at the public expense, the discharge is usually withheld for a time, and in the case of schoolmasters who have also been educated at the cost of the public, the purchase money is raised to £50 (\$250). The amount of purchase money in these cases varies according to the length of unexpired service.

The terms of service in the various arms are as follows: Long service, which consists of 12 years' service with the colors and no reserve service; or short service, which consists of periods of service with the colors and with the reserve varying in length as stated below.

Long service.—Enlistments for long service are restricted to the following classes and corps: The corps of household cavalry, the corps of army schoolmasters, the ordnance store corps (armorer section), the West India regiment, foot guards (men enlisted for appointment as bandsmen), royal artillery (men enlisted for appointment as armament artificers), royal engineers (men enlisted for appointment as military mechanists), and boys (all arms).

Short service.—The terms of short service in the various arms of the service are as follows:

- | | | |
|--|---|--|
| (a) Cavalry of the line,
Royal artillery,
Infantry of the line,
Ordnance store corps,
Royal Malta artillery, | } | Seven years' army and five years' reserve service. |
| (b) Army service corps: | | |
| (c) Foot guards,
Medical staff corps, | | |
| | | |
| | | |
| | | Three years' army and nine years' reserve service. |
| | | Seven years' army and five years' reserve service, or
three years' army and nine years' reserve service,
at the option of the recruit. |

In cases (a), (b), and (c), if the man at the expiration of the legal period is serving beyond the seas, then he may extend his service in the army for a further period, not exceeding one year, and the remaining portion of the 12 years will be spent in the army reserve (first class).

- | | | |
|--|---|---|
| <p>(d) Royal engineers (except the telegraph reserve, the railway reserve, and the submarine mining reserve).</p> | } | <p>Seven years' army and five years' reserve service, or three years' army and nine years' reserve service, with the privilege of an extension of not to exceed one year, under the circumstances mentioned above.</p> |
| <p>(e) Post-office corps, Royal engineers (telegraph reserve and railway reserve, and submarine mining reserve).</p> | } | <p>Three years' army and three years' reserve service. The men will, however, be transferred to the reserve immediately on enlistment; during peace all, except the submarine mining reserve, will not be retained with the colors more than 6 months (12 months for the railway reserve) after the cessation of hostilities.</p> |

III.—RECRUITING.

There were in 1894, 35,000 voluntary enlistments approved for the regular army and 33,205 for the militia, which amounted to 0.0867 per cent of the population for the regular army and 0.086 per cent for the militia.

IV.—MILITARY EXPENDITURE.

The annual military budget amounts to, in round numbers, \$89,000,000.

V.—THE COMMAND AND STAFF OF THE ARMY.

The command of the army, militia, and all forts and fortified places is, by an ancient statute, vested in the Crown. Power to govern the army, however, is granted annually by an act of Parliament, which brings into force the army act; but this power, when given, is exercised by the Crown alone. The manner in which this power is exercised is subject, like the exercise of any other prerogative, to the advice of the ministers of the Crown, of whom the one particularly responsible for the army is the secretary of state for war.

The War Office.—The chief personages in the war office are the secretary of state for war, and the commander in chief. The former is a member of the government for the time being, and as such is responsible to Parliament, or rather to the House of Commons. The latter has no seat in Parliament (though the late and the present commanders in chief are both peers, and, as such, members of the House of Lords) and is responsible only to the Sovereign. The office of the commander in chief, called the Horse Guards, and that of the secretary of state for war, were formerly entirely separate from each other, but by an act of Parliament passed about twenty-five years ago, the two offices were united, and the secretary of state was given immediate control and authority over all the departments of the war office, which were distinguished as the financial department, under a civil officer, called the financial secretary (changes with ministry), and the military department, under the commander in chief.

The secretary of state for war is assisted in his duties, parliamentary and administrative, by two under secretaries of state, one of whom, called the parliamentary under secretary, is generally a peer and represents the government and the war office in the House of Lords.

(When the secretary of state for war is a peer, the under secretary is a member of the Commons.) The other, called the permanent under secretary, is chiefly intrusted with the direction of the office business of the war ministry. He has no seat in Parliament, and does not change with the ministry.

The chief offices of the war ministry, under which the different bureaux are carried on, are the following: The central department, directly under the secretary of state for war; the financial department, under the financial secretary, and the military department, under the commander in chief.

Under the finance department are the manufacturing departments, comprising the clothing department, and the ordnance factories department.

The subdivisions and duties of the financial and military departments are explained at length in the new order in council reorganizing the war ministry, the subdivisions of the central department, etc., not being explained in this order in council, are briefly summarized here.

The central department of the war ministry, corresponding to what is called on the continent of Europe the cabinet of the minister, "is the medium of communication, otherwise than on details, with authorities outside of the military service. The central department comprises four subdivisions, under civilian heads, directly responsible to the permanent under secretary of state." * These subdivisions are as follows:

C. 1. Registry and distribution of correspondence.

C. 2. A variety of miscellaneous subjects, such as nonconformist clergy, orders of knighthood, correspondence on colonial military subjects, etc.

C. 3. Responsibility for editing of all regulations. (New rules or regulations proposed by any subdivision can not take effect until passed by C. 3.)

C. 4. Various kinds of parliamentary business: Conduct of the parliamentary business of the war office; editing of returns for Parliament; preparation of bills to be submitted to Parliament and keeping track of all military legislation proposed to that body; actuarial work of the war office; printing and supply of stationery to the war office and the army, etc.

Although as the representative of the Crown in Parliament, the secretary of state for war has complete control over the army, in all matters, whether administrative or executive; yet as a matter of fact, he limits his control to the central and financial departments of the ministry, leaving all purely military matters to be administered and executed by or through the military department. The control of the purse, thus retained by the secretary of state for war, is a more than sufficient check on the independence of the commander in chief.

The terms of the order in council, reorganizing the war office, which went into effect just after the retirement of the Duke of Cambridge from the position of commander in chief, are given in the following explanatory memorandum:

Explanatory memorandum connected with the war office reorganization by an order in council, November 21, 1895, embracing the rule to "define the duties of the principal officers who may hereafter from time to time, under the secretary of state for war, be charged with the administration of the departments of the army—subject to such regulations as shall be made by the secretary of state for war—the officers hereafter named shall be charged with the duties herein assigned them."

EXPLANATORY MEMORANDUM.

The following memorandum sets forth the duties of the several departments of the war office, the responsibility of the principals, and details of procedure.

* Army book for the British Empire.

THE SECRETARY OF STATE.

The secretary of state exercises administrative control over all army services, and the heads of all the principal departments, both military and civil, are responsible to him for the discharge of the duties assigned to them.

He is assisted by the under secretaries of state.

CONSULTATIVE COUNCIL.

A war office consultative council, presided over by the secretary of state, will meet when required for the discussion of such subjects as may be referred to it by the secretary of state.

The council will consist of the under secretaries of state, the financial secretary, the military heads of the principal military departments, and of such other officers as may, on special occasions, be summoned to attend its meetings.

THE PRINCIPAL MILITARY DEPARTMENTS.

DEPARTMENT OF THE COMMANDER IN CHIEF.

The commander in chief exercises general command over her majesty's military forces at home and abroad, issues army orders, and holds periodical inspections of the troops.

He is the principal adviser of the secretary of state on all military questions, and is charged with the general supervision of the military departments of the war office.

He is charged with the general distribution of the army at home and abroad; with the preparation and maintenance of detailed plans for the mobilization of the regular and auxiliary forces; with the preparation of schemes of offensive and defensive operations, and with the collection and compilation of military information; with selecting fit and proper persons for appointment to commissions in the regular forces, and with proposing fit and proper officers, whether of the regular or auxiliary forces, for promotion, for staff and other military appointments, and for military honors and awards.

The military secretary deals with appointments, promotions, and retirement of officers of the regular and auxiliary forces; with selections for appointment to the staff, etc.; with the grant of honors and rewards, etc., and with the regulations for the admission of candidates to the army.

The director of military intelligence deals with the preparation of information relative to the military defense of the Empire and the strategical consideration of all schemes of defense; the collection and distribution of information relating to the military geography, resources, and armed forces of foreign countries, and of the British colonies and possessions; the compilation of maps, and the translation of foreign documents. He conducts correspondence with other departments of the state on defense questions, and is authorized to correspond semiofficially with them on all subjects connected with his duties.

The officer in charge of mobilization services deals with all questions connected with the mobilization of the forces, including field army establishments, and with the tactical examination of all schemes of defense.

THE ADJUTANT GENERAL'S DEPARTMENT.

The adjutant general is charged with the discipline, military education, and training of the officers, warrant officers, noncommissioned officers and men of the regular and reserve forces and militia of the United Kingdom, and of the yeomanry and volunteer force of the United Kingdom when subject to military law or when assembled for training, exercise, inspection, or voluntary military duty; with patterns of clothing and necessities; with the maintenance of returns and statistics connected with the personnel of the army; with enlisting men for and discharging men from the regular and auxiliary forces.

He will submit proposals for the establishments to be provided for in the annual estimates, and it will be his duty to advise the secretary of state on all questions connected with the duties of his department. In the absence of the commander in chief, he will act for him.

THE QUARTERMASTER GENERAL'S DEPARTMENT.

The quartermaster general is charged with supplying the army with food, forage, fuel and light, and quarters with land and water transport, and with remounts; with the movement of troops, and with the distribution of their stores and equipment; with administering the army service corps, the pay department, and the establishments employed in the above services, and with dealing with sanitary questions relating to the army.

He will make such inspections as may be necessary to secure the efficiency of the services under his control.

He will submit proposals for the annual estimates for the above services, and it will be his duty to advise the secretary of state on all questions connected with the duties of his department.

DEPARTMENT OF THE INSPECTOR GENERAL OF FORTIFICATIONS.

The inspector general is charged with the construction and maintenance of fortifications, barracks, and store buildings, and the inspection of ordnance factory buildings; with military railways and telegraphs; with the custody of war office lands and unoccupied buildings; with advising as to the design and issue of royal engineer and submarine mining stores. He will submit proposals for the annual estimates for engineer services.

He will advise as to the general distribution of the corps; as to the appointment of officers to or their removal from responsible positions in connection with works; on all questions relating to the technical instruction of the corps of royal engineers. He will make such inspections as may be necessary to secure the efficiency of the services under his control, and it will be his duty to advise the secretary of state on all questions connected with the duties of his department.

DEPARTMENT OF THE INSPECTOR GENERAL OF ORDNANCE.

The inspector general is charged with supplying the army with warlike stores and equipment; with the inspection of all stores supplied by the manufacturing departments, or by contractors; with dealing with questions of armament, of patterns, of inventions and designs, and with the direction of the ordnance committee. He will administer the ordnance store department and the ordnance store corps, and will make such inspections as may be necessary to secure the efficiency of the services under his control. He will submit proposals for the annual estimates for the above services, and it will be his duty to advise the secretary of state on all questions connected with the duties of his department.

OTHER MILITARY DEPARTMENTS,

Which report to the commander in chief, the adjutant general, or the quartermaster general, respectively.

THE DIRECTOR GENERAL OF THE ARMY MEDICAL DEPARTMENT

Is charged with the administration of the medical establishments of the army; with the medical staff corps; with the preservation of medical and sanitary statistical returns, and with the supply of medical stores to the army.

THE DIRECTOR GENERAL OF MILITARY EDUCATION

Is charged with the educational qualifications for examination of officers, noncommissioned officers, and men; with the administration of the staff college, artillery college, royal military college, and royal military academy, and with the supervision of army schools, etc.

THE CHAPLAIN GENERAL

Is charged with the supervision of the chaplains of the church of England, and with all questions connected with the Church of England services. Arrangements as to other denominations are made by the permanent under secretary of state.

THE DIRECTOR GENERAL OF THE ARMY VETERINARY DEPARTMENT

Is charged with the administration of the veterinary establishments and services of the army, and with the preparation of sanitary and statistical returns relating to the above services.

FINANCIAL DEPARTMENT.

The financial secretary is charged with financially reviewing the expenditure proposed to be provided in the annual estimates for submission to Parliament; with financially reviewing any proposals for new expenditure, or for any proposed redistribution of the sums allotted to the different subheads of the votes for army services; with seeing that accounts of all expenditure of cash and stores are correctly and punctually rendered; with auditing and allowing all such expenditure, and recording the same under its proper head of service in the annual account to Parliament; with issuing all warrants for the payments of moneys; with making all

impresits to accountants and others; with the control of the manufacturing departments of the army (including the clothing department), and with controlling and recording all contracts for army services, and with advising the secretary of state on all questions of army expenditure.

THE ACCOUNTANT GENERAL

Is charged, as permanent head of the finance division, with advising the financial secretary on all financial questions; with compiling the estimates for submission to Parliament; with issuing money for all army services; with the audit of all military expenditure of money and stores; and with the preparation of the annual account for Parliament.

THE DIRECTOR OF CONTRACTS

Is charged with the supervision, in concert with the heads of the divisions concerned, of all contracts for transport; with the purchase or sale of supplies, stores, clothing, lands, and buildings, and with the supervision of all special local purchases. He will report the cost of production of stores in the manufacturing departments in comparison with the rates at which similar stores could be purchased from the trade.

MANUFACTURING DEPARTMENTS.

THE DIRECTOR GENERAL OF ORDNANCE FACTORIES

Is charged with the administration and working, so far as possible upon a commercial basis, of the ordnance factories at Woolwich, Enfield, Waltham, and Birmingham. He will submit estimates of the expense necessary to carry out the orders he may receive for army, navy, India, and colonial services; and will prepare the accounts of expenditure incurred in the factories for audit in the finance division and submission to Parliament. He will make an annual report to the secretary of state through the financial secretary.

THE DIRECTOR OF CLOTHING

Is charged with the provision of clothing and necessities for the army, and with the administration of the army clothing department at Pimlico.

DETAILS OF OFFICE PROCEDURE.

1. The head of each principal military department will be responsible for questions belonging to his department, and for submitting them, when higher authority is necessary, to the secretary of state in a complete form, showing fully all the considerations involved.
2. When the question affects more than one of the military departments, the head of the department dealing with it will refer the papers to the other department, or departments, concerned, in order that the question may be considered in all its bearings before submission to the secretary of state.
3. All important questions will be referred to the commander in chief before submission to the secretary of state. Questions which do not require the secretary of state's decision, but which affect more than one of the military departments, will be referred to the commander in chief for decision.
4. The principal military departments have power to authorize, without previous reference to the financial department, all expenditure covered by regulation and provided for in the subheads of the estimates. All papers authorizing charges in army accounts will be marked to the financial department for notation by the auditors.
5. Proposals by the principal military departments for new expenditure, for expenditure not provided for by regulation and in the subheads of the estimates, for changes in authorized establishments, for new patterns, for alteration in existing patterns, or for changes in the quality of supplies or stores, or in the extent of authorized reserves, will be referred to the branch of the financial department which deals with the subject for report. The financial department will return the papers, when reported upon, to the military department, and the head of the military department concerned will obtain the decision of the secretary of state, if there should be a difference of opinion between him and the financial department.
6. All questions that have been submitted to the treasury will be referred to the financial department; and all letters to the treasury will be signed by the financial secretary after the drafts have been approved by him, the record of the correspondence remaining in the military department.
7. Correspondence arising out of the examination of army accounts, and all questions of the interpretation of regulations relating to pay and allowances, will be dealt with by the financial department in communication, where necessary, with the military department.

8. Appeals, by officers and others, against decisions given in the financial department, will be referred to the military department for remarks. Where the military and financial departments differ in opinion on such questions the latter will submit the papers for the decision of the secretary of state.

9. All questions requiring the decision of the secretary of state will be submitted through the under permanent secretary of state.

THE ARMY BOARD.

10. The commander in chief, the adjutant general, the quartermaster general, the inspector general of fortifications, and the inspector general of ordnance, or such of them as may be summoned, will form a board, under the presidency of the commander in chief, for the purpose of reporting upon—

(a) Selections for promotion in the army above the substantive rank of major;

(b) Selections for staff appointments above the rank of lieutenant colonel;

(c) Proposals for estimates (see paragraph 16) and such other questions as may be referred to it by the secretary of state.

11. The accountant general will attend the board and give it such financial information as may be necessary, but the presence of the accountant general at the board does not dispense with the necessity for submitting formally to the financial department all questions requiring financial consideration (see paragraph 5).

12. Additional officers may, when necessary, be summoned by the president to attend the board.

13. After a question has been considered by the board, it will then be the duty of the head of the department concerned to complete the case, submitting it when necessary, for the decision of the secretary of state (see paragraph 3).

14. The secretary to the board will keep full records of its proceedings, showing the questions discussed and the decisions arrived at in each case. Any member who dissents from the decision of the majority will record his dissent in the proceedings of the board.

15. The record of the proceedings of the board will be submitted by the secretary for the information of the secretary of state.

ESTIMATES.

16. Before the detailed preparation of the estimates is commenced, the secretary of state, having before him the proposals made by the heads of the military departments for new or increased expenditure, will give the army board information as to the approximate amount within which the army estimates for the year are to be kept. He will then refer to the board such of the proposals as he may desire them to report upon. The accountant general will supply the board with any calculations or information as to the cost of the proposals before them.

17. The board will then proceed to consider, and in their report they will indicate, the relative importance to army requirements of the various proposals, and they will state which proposals they recommend for insertion in the estimates of the year.

It will also be the duty of the board to consider and to state in their report what economies are practicable in existing expenditure on military services.

18. When the secretary of state has decided upon the proposals for establishments and other services for the ensuing year, his decision will form the basis upon which the preparation of the detailed votes and appendices will be proceeded with.

Vote 6. Transport and reports.

Vote 7. Provisions, etc.

Vote 9. Stores.

Vote 10. Works.

} Will be prepared in detail by the military departments concerned.

19. The other votes will be prepared and completed by the financial department, which will also finally incorporate all the votes, complete the army estimates, and submit them to the secretary of state.

CONTRACTS.

20. The head of each military department will initiate all demands for services under his charge which require contracts to be entered into at headquarters, and tenders for such services will only be invited upon his requisition. Upon the tenders being referred to him by the director of contracts he will state what tender should, in his opinion, be accepted. The lowest tender will not be passed over unless the head of the department concurs with the director of contracts in doing so; in that case, unless such a course is governed by approved precedent, the authority of the financial secretary will be obtained, to whom also will be referred any differences of opinion between heads of departments and the director of contracts, as to the tender to be accepted.

Any points, other than those of mere detail, which arise upon the review by the director of contracts of local contracts concluded in home and foreign commands, or of local purchases, will be considered and reported upon by the head of the department to which the service belongs.

21. When differences with contractors can not be locally settled and an appeal is made by a contractor to the war office, the director of contracts will refer the papers, with his remarks, for the opinion of the head of the department concerned. The latter, when necessary, will obtain such information as may be required from the officer responsible for the execution of the contract, and will then return the papers, with his opinion, to the director of contracts for disposal. When differences of opinion arise between the director of contracts and heads of departments, the matter will be submitted for the decision of the financial secretary, and, when necessary, of the secretary of state.

ARMY ORDERS.

22. Army orders will be drafted in the department dealing with the subject matter of the order, and will be initialed by the head of the department as a guarantee of the necessity for, and the correctness of, the proposed order.

23. When orders and regulations affect more than one of the departments of the office, it will be the duty of the army regulation branch to circulate the draft to every branch concerned.

24. All orders and regulations will be referred by the army regulation branch for the consideration of the commander in chief before being submitted for the approval of the secretary of state. When approved, they will be signed by the commander in chief.

CORRESPONDENCE.

25. All letters from the war office will be written in the name of the secretary of state for war, and, with the exceptions contained in paragraph 26, will be signed by the head of the department dealing with the question, or by an officer authorized to sign for him.

26. Letters addressed to other public departments (except to the treasury, see paragraph 6), to Members of Parliament, to municipal or other public bodies, will be signed by an under secretary of state.

27. Records of correspondence will be kept in the departments dealing with the subject matter of the letters.

28. All letters to the war office, and all returns, reports, etc., will be addressed to the under secretary of state, and will be distributed by the registry to the various departments concerned.

The Staff of the Army.—The so-called "staff" of the English army comprises: General officers actively employed, officers of the adjutant general's department, officers of the quartermaster general's department, military secretaries, aids-de-camp, brigade majors, officers of the general staff, and officers on the staffs of the district commands. Some of these classes run into, or are included in, the others.

The word "staff" is also employed in England (as in the United States) to apply to the various headquarter staffs, from the staff of the war office down to the staffs of battalions and regiments. It is freely applied to officers employed extra-regimentally, and the permanent instructional cadres of the militia are called the "permanent staff" of that body. There are also the "Indian staff corps," many of whose officers have no army duties whatever, regimental or otherwise, and the "medical staff." The term "staff," as used in England, has a much wider meaning commonly assigned to it than the so-called German and French equivalents, "stab" and "état-major."

Staff officers are selected exclusively from the regular forces, including the royal marine forces, and no officer is qualified to hold a staff or extra-regimental appointment until he has been four years in service, unless special authority is granted for such an appointment outside of this rule, which is done in exceptional cases only. Officers selected for the staff must, as a rule, have passed through the staff college, or passed the final examinations of that institution. Army service corps officers, officers holding the rank of lieutenant colonel, and officers of proved ability in the field, are eligible to certain staff appointments without having passed through the staff college.

All officers holding staff appointments are now "seconded"—that is, are supernumerary to the establishment of their regiments. Officers of the army service corps and royal engineers are exceptions to this rule. No officer can hold a staff appointment over 5 years (over 6 years on the staff of the governor of a colony).

The General Staff.—The number and status of the officers of the general staff posted to each command vary according to local requirements. The senior officers of royal artillery and royal engineers in the command will, in addition to their other duties, be staff officers on the general staff.

The duties of the officers of the general staff comprise the supervision and control, under the general or other officer commanding, of all army services. These duties are divided for purposes of administration into the following groups:

A.—Discipline, interior economy, drill, military training and instruction, musketry, signaling camps, and schools.

B.—Arms, ammunition, clothing, equipment, supply, transport, movements, distribution and quartering, barracks, hire of land and buildings, etc.

C.—Artillery services.

D.—Engineer services.

In the general staff are reckoned the general officers commanding; colonels on the staff; deputy adjutants general, assistant adjutants general, and deputy assistant adjutants general, including district inspectors of musketry; brigade majors; aids-de-camp; staff captains; garrison and camp quartermasters; aids-de-camp to the Queen, and the recruiting staff. In general these various classes form the military staffs proper of the different generals commanding.

VI.—ORGANIZATION.

(a) GENERAL.

Three army corps are provided for.

(b) ARMY CORPS.—PEACE FOOTING.

Properly speaking, army corps are organized only for service abroad or for home defense in case of war. In peace there is no corps organization, but at home the troops are distributed in district commands, corresponding very nearly to the military departments of the American organization. In England, Scotland, and Wales there are eleven districts, in the Channel Isles two, and in Ireland four.

(c) ARMY CORPS.—WAR FOOTING.

There are two states of mobilization for war, as has been already indicated, viz, service abroad and home defense. The composition of an army corps and the number of corps vary somewhat in these two cases. For home defense, 3 corps and 4 cavalry brigades are provided for. The normal composition of the corps is as follows:

Three infantry divisions, 1 battalion with 2 machine guns, 1 squadron of cavalry, 2 field batteries, 2 horse artillery batteries, 5 ammunition columns, 1 engineer company, 1 bridging troop, $\frac{1}{2}$ telegraph battalion, 1 balloon section, or, counting in the units in the divisional organizations, there would be 25 battalions of infantry, 7 machine-gun detachments, 4 squadrons of cavalry, 12 batteries of field artillery, 3 batteries of horse artillery, 8 ammunition columns or sections of ammunition park, 4 engineer field companies, 1 bridging troop, $\frac{1}{2}$

telegraph battalion, 1 engineer field park, 1 balloon section, 12 companies army service corps, 6 bearer companies, 10 field hospitals, and 1 signal company. Total strength, 1,129 officers, 32,110 men, and 90 guns; not counting 307 men left at concentration places. (If the number of guns is increased, as announced by Sir H. Campbell-Bannerman, late war secretary, in the House of Commons March, 1895, the strength of a corps will be increased to 1,139 officers, 32,450 men, and 102 guns.)

The organization given is that of the 1st corps; the other corps vary slightly from the organization laid down.

For service abroad, a force consisting of 1 army corps (the 1st army corps) and an independent cavalry division is provided for. The composition of the army corps is based on that for home defense, but with the following variations:

There are only 11 batteries of field artillery, 4 ammunition columns or sections, no balloon section, 10 companies of army service corps, 3 field hospitals, and 2 signal companies, 1 mounted and 1 dismounted. (Total strength, 1,155 officers, 33,936 men, and 84 guns. If the artillery be increased as claimed by Sir H. Campbell-Bannerman, the total strength will be increased by 15 officers, 506 men, and 18 guns. In the above figures 25 officers and 2,369 men left at base are not included.)

An expeditionary corps (field force) has recently been organized with a special view to rapid mobilization, which must always be kept in readiness. This force consists practically of the Aldershot Division, the units of which, being the next reliefs for India, are always kept full. The composition of this force is as follows: Second Division for home defense (containing, however, an entire regiment of cavalry instead of 1 squadron); Second Cavalry Brigade for home defense (containing 2 batteries of royal horse artillery instead of the 1 allotted to it); additional units, and base and line of communication troops. The total strength of this force amounts, in round numbers, to 20,000 men, of which the infantry division and cavalry brigade number 13,212 men and 30 guns.

VII.—THE DIVISION.

On mobilization, 9 divisions of infantry are formed, composed of (a) 2 brigades of infantry of 4 battalions each, (b) 1 squadron of cavalry, and (c) 3 field batteries, a company of the army service corps as train troops, 1 field company of royal engineers, and 1 field hospital.

VIII.—THE INFANTRY.

(a) GENERAL.

There are 3 regiments of guards and 68 of line infantry, forming in all 148 battalions of 8 companies each; the regimental organization being purely nominal, as the battalion commanders (lieutenant colonels) are virtually independent of the honorary regimental commanders (colonels).

(b) THE BATTALION.—PEACE FOOTING.

The battalion is organized into 8 companies and calls for 24 officers and 776 rank and file (home). The foot-guard battalions are slightly stronger in officers and men. The battalions serving in India number 29 officers and 1,003 men. Those in the colonies have 28 officers, and vary from 864 to 984 men.

(c) THE BATTALION.—WAR FOOTING.

The war organization of the battalion calls for 28 officers and 982 rank and file (home), and 28 officers and 1,067 men (abroad).

(d) REGIMENTAL DEPOTS.

Each territorial regiment of infantry, of which there are 67, has its own regimental district and its own regimental depot. At the depot are stationed the 9th and 10th companies of each of its two line battalions, and here the training of the recruits, both for the line and militia battalions of the regiment, is accomplished. The 2 rifle regiments have a depot between them. There are, however, only 61 depot commands, as some of the depots are double, and serve for 2 regiments. The 3 regiments of guards, forming in all 7 battalions, have a depot of their own.

The regimental district and depot is commanded by a colonel, usually one who has been at the head of one of the battalions of the territorial regiment as lieutenant colonel. He does not in any sense command the regiment or either of the battalions, not even if one of the battalions is stationed in the regimental district.

The strength of a depot is usually 4 or 5 officers and about 65 men.

IX.—THE CAVALRY.

(a) GENERAL.

There are 2 regiments of life guards and 1 of horse guards, 3 regiments of dragoons, 7 of dragoon guards, 5 of lancers, and 13 of hussars. Of these, five regiments, viz, the 1st and 2d life guards and the horse guards (these three guard regiments correspond to the cuirassiers of the armies of the continent of Europe), and the 1st and 2d dragoons, are heavy cavalry. All the dragoon guards (7 regiments), 1 dragoon regiment, and the lancers (5 regiments), in all 13 regiments, are medium cavalry, and the 13 regiments of hussars are light cavalry.

This gives a total of 31 regiments or 124 squadrons.

Up to 1892 the regiment was subdivided into 8 troops; on the 1st of March of that year these troops were abolished and the squadron organization was adopted.

In time of war the cavalry is grouped in brigades of 3 regiments each, forming 4 brigades. For service abroad a cavalry division of 2 brigades will be organized. If two army corps are in the field the cavalry brigade will contain 4 regiments. The remainder of the cavalry is assigned to the corps and to divisions.

(b) THE REGIMENT.—PEACE FOOTING.

At home the organization of the regiment calls for a staff and 4 squadrons, consisting of 24 officers and from 426 men and 280 horses to 658 men and 410 horses. The regiments at home have no depots. The household cavalry (guard regiments) are slightly stronger in officers, and number 406 men and 275 horses.

The squadron consists of 5 officers (1 major, 1 captain and 3 lieutenants, or 2 captains and 3 lieutenants) and generally from 104 to 162 men.

The regiments on foreign service have 4 squadrons and a depot (the depot being at home), and number each (abroad) 29 officers and 601 men and 525 horses. Each depot consists of 2 officers and 125 men. The regimental depots are all united in one main cavalry depot at Canterbury, where all the cavalry recruits for foreign service are sent.

(c) THE REGIMENT.—WAR FOOTING.

The regiment (home defense) consists of 31 officers (including 1 medical and 2 veterinary officers), 581 men, and 599 horses (including draft and pack animals). The squadron has 6 officers and 133 men.

For service abroad the regiment consists of the same number of officers as for home defense. The number of men and animals amount respectively to 636 and 618. The squadron numbers 6 officers and 138 men.

The actual field strength of a regiment, either at home or abroad, is, on account of detachments left behind at the place of concentration or base, only about 600 officers and men.

X.—THE ARTILLERY.

(a) GENERAL.

The whole of the artillery is organized into one corps, the royal regiment of artillery, comprising the batteries of royal horse artillery, the batteries of field artillery, the batteries of mountain artillery, and the companies of garrison artillery. There are in all 118 batteries and 2 depot batteries, field artillery, including horse and mountain artillery; and 93 companies and 6 depots of garrison artillery.

(b) HORSE ARTILLERY.

There are 22 horse batteries, of which 1 is a depot battery. There are 11 horse artillery batteries in India.

(c) THE FIELD ARTILLERY.

There are 88 field batteries, of which 1 is a depot battery. There are 42 field artillery batteries in India.

(d) THE MOUNTAIN ARTILLERY.

There are 10 batteries of mountain artillery, of which 1 acts as a depot battery; 8 are in India, 1 in South Africa, and the depot battery is at home.

(e) THE GARRISON ARTILLERY.

There are 93 companies of garrison artillery, distributed in 3 territorial divisions—(a) the eastern division with 26 companies, (b) the southern division with 40 companies, and (c) the western division with 27 companies. There are, moreover, 6 depots, making 99 companies in all, of which 27 are in India, 31 in the colonies, and 41 at home.

(f) ARMAMENT.

The batteries of field artillery are armed with 6 guns, caliber 3 inches, known as the 12-pounder B. L. gun. The horse artillery batteries are armed with 6 guns of same caliber. By an order issued April 1, 1895, 5 batteries of horse artillery and 32 batteries of field artillery, all serving at home, were reduced to 4 guns each. The 10 mountain batteries are each armed with 6 guns, Maxim or Nordenfeldt machine guns, or 7-pounder guns of 150 and 200 pounds weight, or a 2½-inch jointed gun.

(g) FIELD ARTILLERY.—PEACE FOOTING.

The field battery of 6 guns consists of 5 officers and 161 rank and file. The 4-gun batteries have 4 officers and 136 men. Horse artillery, 5 officers and 162 rank and file and 6 guns (higher establishment); and 5 officers, 157 men, and 6 guns (India). Mountain artillery, 5 officers and 106 rank and file and 6 guns (India).

(h) FIELD ARTILLERY.—WAR FOOTING.—SERVICE ABROAD.

Field artillery, 5 officers, 171 rank and file, 6 guns. Horse artillery, 5 officers, 180 rank and file, 6 guns. Mountain artillery, 5 officers, from 152 to 208 men, and from 77 to 170 hired muleteers, and 6 guns.

(j) GARRISON ARTILLERY.

The personnel, etc., of the garrison artillery is not constant, but varies considerably according to where the batteries are located.

XI.—THE ENGINEERS.**(a) GENERAL.**

The engineers form one body—the corps of royal engineers, consisting of the officers of the corps and several organizations of enlisted men. The engineer officers are employed with the troops of their own arm and on various special engineer services. The total number of officers of the corps is 942.

(b) THE ENGINEER TROOPS.

These are organized into 6 battalions of engineers, viz: (1) The field battalion, which consists of 1 bridging battalion, of 2 troops, 2 field parks and training depot, 1 balloon depot and section, and 2 battalions of 4 field companies each. (2) One fortress battalion of 18 companies, 8 depot companies, and 1 European depot for West Indian companies. (3) One submarine mining battalion consisting of 3 central station companies, 9 service companies, 1 coast battalion of 11 sections, and 1 European depot for the eastern and Jamaican companies. (4) One railway battalion of 2 companies. (5) One telegraph battalion of 2 divisions (companies). (6) One topographical (survey) battalion of 4 companies.

(c) STRENGTH.—PEACE FOOTING.

The bridging battalion consists of 6 officers and 192 men.

Field parks and training depot, 4 officers and 201 men.

Field company, higher establishment, 4 officers and 182 men.

Field company, lower establishment, 3 officers and 96 men.

Balloon depot and section, 2 officers and 33 men.

Telegraph battalion, 11 officers and 331 men.

Submarine mining company (average), 3 officers and 67 men.

Railway company, 2 officers and 70 men.

Fortress companies (average), 3 officers and 93 men.

Survey companies (average), 1 officer and 92 men.

(d) STRENGTH.—WAR FOOTING.

On mobilization, the engineer troop units are broken up, and the fractions are assigned to the various organizations enumerated in the mobilization regulations, such as corps, divisions, and fortresses.

Field company, 6 officers and 207 men.

Mounted detachment, 4 officers and 115 men.

Pontoon troop, 3 officers and 209 men.

Telegraph battalion (headquarters and 4 sections), 6 officers and 240 men.

Field park, 1 officer and 43 men.

Balloon section, 3 officers and 50 men.

The above figures are for "home defense." The figures for service abroad are the same or very nearly the same as the above.

Fortress company (service abroad), 4 officers and 129 men.

XII.—THE RAILWAY TROOPS.

The railway troops, which form part of the engineers, consist of 2 companies. One is stationed in peace at Woolwich, where it is employed on the construction and maintenance of the railways at the arsenal, and the other company is at Chatham, where it is employed also on a government line. If a complete army corps were mobilized for foreign service, both companies would be attached to the troops employed on the lines of communications. For home defense, however, they would act as fortress engineers.

In war, these units may be supplemented by men from the railway reserve.

Strength of a mobilized railway company, 5 officers and 153 men.

XIII.—THE ARMY SERVICE CORPS.

(a) GENERAL.

The army service corps is charged with the supply of all transport, provisions, fuel, light, and, generally, supplies of every kind for the use of all branches of the army; also the allotment of barracks and quarters, and their employment. It also has the duty of providing the personnel of remount depots and takes charge of the clerical work of the army so far as it is not done by the troop units and organizations themselves.

The corps is now classed as combatant, and its officers exercise such command as their seniority may involve.

The administration of the corps is vested in the quartermaster general to the forces, who submits for the approval of the commander in chief questions relating to the appointment, promotion, and retirement of the officers. Under the orders of the quartermaster general, the assistant quartermaster general, army service corps, exercises the functions of a commanding officer at the headquarters of the corps, which are established at the war office.

The first duties of the corps being broadly divided into supply and transport, the warrant officers, noncommissioned officers, and men are divided into dismounted and mounted branches. The dismounted branches consist of clerks and tradesmen, such as bakers and butchers, of varying ranks and acquirements, stationed at most military stations at home and abroad (except India), and quartered with and attached to the companies, by detachments, the size of which depends upon circumstances.

The mounted branch has its training depots at Aldershot and Woolwich, and consists of service companies, 34 in number, and 2 remount companies and 2 depot companies. There are in all, counting the companies belonging to the dismounted branch, 40 companies; 31 are stationed in England and 9 in Ireland.

There are also special sections which provide personnel for (1) the barrack services, and (2) the clerical work of general staff officers.

(b) STRENGTH.—PEACE FOOTING.

The officers of the corps numbered, on the 1st of July, 1895, 264, of whom 35 were employed in the general staff of the army.

Dismounted branch (counting 2 dismounted companies)	941
Mounted branch (84 service companies, 2 remount companies and 2 depot companies) ..	2,820
Barrack section	175
Staff clerk section	245
Total	3,945

(c) STRENGTH.—WAR FOOTING.

For duties in war (supply and transport), the units of the army service corps are organized in companies, complete in themselves. The peace company of the mounted branch is the unit of expansion.

For service with one army corps serving abroad there are required by the mobilization tables: 3 companies at the base, 2 on the lines of communications, 1 at the advanced depot, 14 with the units of the fighting force, and 2 companies to bake bread for the troops in front.

For home defense, 37 companies would be distributed among the fighting units of the army.

The strengths of the various companies will vary greatly, depending on the functions they fulfill, and the units to which they are attached.

The strength and subdivision of one company (army service corps) for the headquarters of a division of infantry and the services connected therewith are given as a sample:

Staff of a division: Transport, 1 officer, 16 men; supply, 1 officer, 5 men.

Supply officer and his equipment: Transport, 9 men; supply, 1 officer, 9 men.

Supply column: Transport, 1 officer, 48 men; supply, 4 men.

One field hospital: 1 officer, 25 men.

Headquarters of a company: 1 officer, 26 men.

Spare: 14 men.

Veterinary surgeon attached: 1 officer, 1 man.

Total, 7 officers, 157 men; while the strength of one company for the headquarters and corps details of one army corps is 9 officers and 258 men.

XIV.—THE TRAIN TROOPS. (See Army Service Corps.)**XV.—THE PONTONIER TROOPS. (See Engineer Troops.)****XVI.—THE MEDICAL AND SANITARY SERVICES.**

These consist of (1) the army medical staff, (2) the medical staff corps, and (3) the army veterinary department.

(1) THE ARMY MEDICAL STAFF.

The officers of the army medical staff comprise a director general, who is a surgeon major general, and an establishment of administrative officers consisting of 10 surgeon major generals, 24 surgeon colonels, and about 800 medical officers of the lower grades, brigade surgeon lieutenant colonels and surgeon lieutenant colonels, surgeon majors, surgeon captains, and surgeon lieutenants. There are also about 80 retired medical officers employed as acting medical officers, a few apothecaries, and 35 quartermasters. The apothecaries as they are retired

are not replaced. The quartermasters are men promoted from warrant officers of the medical staff corps.

The duties of the medical staff comprise the treatment of the sick—officers, men, women, and children; sanitation; the examination and passing of recruits for the army; the invaliding of men who are medically unfit for further service; the management and control of the various classes of hospitals; the supervision and control of all officers and men, both patients and those doing duty in the various hospitals; and the command, discipline, and interior economy of the medical staff corps.

The administration and command of the army medical staff and the medical staff corps are vested in the director general of the army medical department, who is a surgeon major general and is at the head of one of the military departments of the war ministry.

A number of medical officers are detailed for duty with the director general at the war ministry. In general, surgeon major generals and surgeon colonels act as principal medical officers in charge of the medical administration of districts and commands. The remaining medical officers perform the executive duties at all stations at home and abroad. The titles of the medical officers carry, generally, precedence and other advantages of rank as indicated by the military portion of the title; but outside of the medical department, they do not entitle the officer to military command, nor to the presidency of courts-martial or boards.

(2) THE MEDICAL STAFF CORPS.

The medical staff corps furnishes warrant officers, and noncommissioned officers and men, for medical and hospital services, under the command of officers of the army medical staff.

It is distributed in time of peace in 21 companies and numerous detachments stationed at home, and a number of detachments serving in the colonies.

All companies and detachments of the medical staff corps in a district or command are under the command of the principal or senior medical officer of the district or command, and are under the command, also, of the senior executive medical officer present with the headquarters of a company or detachment. For administrative purposes in corps matters the former officer is designated "officer commanding medical staff corps in a district or command," and the latter is designated "officer commanding the company or detachment" as the case may be.

The medical officer commanding a company or detachment is usually assisted by another medical officer called the "company officer" who is appointed (by the officer commanding the medical staff corps in the district) for the purpose of attending to the pay and administration of the company. Junior medical officers are also attached to the various companies and detachments for purposes of instruction.

The strength of the medical staff corps on July 1, 1895, was 2,517 warrant officers, non-commissioned officers, and men.

Bearer companies and field hospitals do not exist in time of peace. They are formed on mobilization as follows:

Bearer companies.—These are formed on mobilization from the companies of the medical staff corps, supplemented by reservists, and from the volunteer medical staff corps.

Field hospitals.—These are formed from the various companies of the medical staff corps, supplemented by reservists.

The personnel of the medical staff corps which remains surplus after completing the medical units for the field is allotted to garrisons and base hospitals.

(3) THE ARMY VETERINARY DEPARTMENT.

The army veterinary department consists at present of 1 director general, with the rank and title of veterinary colonel; 8 administrative officers, with the rank of veterinary lieutenant colonel, and 152 executive officers—veterinary majors, veterinary captains, and veterinary lieutenants.

At home the administrative veterinary officers, four in number, are stationed at London, Aldershot, Woolwich, and Dublin (for Ireland).

In India there are also four veterinary lieutenant colonels, one of whom is selected as principal veterinary officer in India. The other officers are distributed in a manner analogous to that at home.

The executive veterinary officers perform their duties under the control and direction of the director general and the district veterinary officers of their districts or divisions. A veterinary officer is attached to each regiment of cavalry, and performs veterinary duties for other units at the station where he may be. Veterinary officers are also posted to stations occupied by other mounted corps.

Duties on active service.—In the field the principal veterinary officer will be attached to the staff of the general of communications. Administrative veterinary officers will be attached, one to each infantry division, one to each cavalry division, one to the base, one to the sick-horse hospital, and one to the remount depot. Executive veterinary officers will be posted for duty in accordance with the requirements of the army.

The personnel available for field service consists of: Officers of the army veterinary department serving in the United Kingdom; retired officers of the army veterinary department, under 55; veterinary officers of the yeomanry and volunteers; reserve of civil veterinary surgeons, registered for service in case of war, and nonregistered civil veterinary surgeons.

XVII.—THE INDIAN ARMY.

Besides the British troops stationed in India, amounting to some 75,000 officers and men, there are the "Indian forces" properly speaking. These consist of regiments permanently stationed in India, and formed almost entirely of natives of the Indian Empire. The officers and men of these forces, who are natives of India, are subject to the Indian articles of war, and are only to a limited extent subject to the army act. Besides the natives of India there are Europeans serving as officers, and persons of certain degrees of European descent serving as noncommissioned officers, or otherwise, who, though forming part of the Indian forces, are subject to British and not to Indian military law. The *enlistment* of Europeans for these forces, except for medical or other special services, is prohibited.

THE INDIAN STAFF CORPS.

British officers commissioned in this corps leave their regiments, and are employed, according as the government of India may direct, in any military or civil employment, irrespective of their rank in the staff corps. Such officers, while holding civil employments, can not assume a military command, but continue to receive promotion in the ordinary course; and on accepting any military appointment they are entitled to take military command.

THE COMMAND AND ADMINISTRATION OF THE ARMY.

The governor general (usually called the viceroy) in council is the supreme head of the army, being intrusted by act of Parliament with the superintendence, direction, and control

of the whole civil and military government in India. Under the governor general in council there is a secretariat, divided into several departments, corresponding to the different departments of a cabinet. One of these departments is called the military department, and it is the agency through which the authority of the governor general in council is administered. This department is in charge of one of the so-called ordinary members of the council, known as the military member, whose functions are ministerial, and to whom the governor general delegates power to deal with, or submit to him, the military business which comes under the cognizance of the government.

Under the head of the military department is a government secretariat composed of a military secretary and several deputy and assistant secretaries. The military secretary receives the orders of the military member of the council. Under the military secretary is placed the office of the commander in chief in India.

This arrangement is somewhat complicated by the fact that the commander in chief in India is an extraordinary member of the council, and, as such, entirely independent of the military member of the council. It has been proposed to abolish the custom by which the commander in chief is made an extraordinary member of the council, but so far, this has not been done.

Under the military secretary are also placed the director general of ordnance in India; the director general of military works; the commissary general in chief, under whom come all matters of supply and transport; and the surgeon general with the government of India.

Under the commander in chief are placed directly the departments of the adjutant general in India, the quartermaster general in India, the director general of military education in India, the judge-advocate general in India, and that of the principal veterinary officer.

THE INDIAN FORCES.

From the year 1859, when the English government took over the administration and government of India from the hands of the East India Company, up to last year, all branches of the Anglo-Indian army, were divided into 3 great parts, corresponding to the presidencies in which they were stationed. These parts, or so-called armies, were the armies of Bengal (to which the Punjab frontier force was attached), and the armies of Madras and Bombay. To these forces must be added the native troops of the so-called Hyderabad contingent and some other native troops, which were directly subordinate to the government of India.

Of these three armies, the largest, that of Bengal, was directly subordinate to the commander in chief, while the two other armies, which in many respects were independent of the commander in chief, were under the control of the governors of their respective presidencies.

For the purpose of effecting a greater centralization of the entire armed forces of India, a centralization which was deemed urgently necessary, a new organization of the Indian army was devised, which went into effect on April 1, 1895. The changes are as follows:

The Bengal army, for purposes of administration, was divided into 2 commands—the Bengal command and the Punjab command.

The Army of India now consists of four commands (or army corps)—Punjab, Bengal, Madras, and Bombay. These commands will be under lieutenant generals, who are styled the lieutenant generals commanding the forces Punjab, Bengal, Madras, and Bombay, respectively, and will all be under the direct command of the commander in chief in India and the control of the government of India.

The business before transacted by the military departments of the governments of Madras and Bombay is now transacted by the military department of the government of India, when such business can not be disposed of by the lieutenant general commanding or by the commander in chief.

DISTRIBUTION OF THE TROOPS

The composition of the several forces is as follows:

British Troops.—The regiments, batteries, battalions, and companies within the command.

Native Troops.—Punjab command, 15 regiments of cavalry, 5 batteries of artillery, and 40 battalions of infantry; Bengal command, 9 regiments of cavalry, 2 batteries of artillery, and 24 battalions of infantry; Madras command, 3 regiments of cavalry and 32 battalions of infantry; Bombay command, 7 regiments of cavalry, 2 batteries of artillery, and 26 battalions of infantry; local corps, no change is made in the position of the Hyderabad contingent or other corps under the government of India.

NUMBER AND STRENGTHS OF THE VARIOUS ORGANIZATIONS.

All told, there are 40 cavalry regiments, 133 infantry battalions, 12 mountain batteries, and 21 companies of sappers and miners.

The establishment of each of the above is, as a rule, as follows: Cavalry regiment (4 squadrons)—British officers, 8; natives of all ranks, 625. Infantry battalion (8 companies)—British officers, 8; natives of all ranks, 912 in Bengal and 832 elsewhere. Artillery battery (six 2.5-inch R. M. L. guns, “knock-down” or screw guns)—British officers, 4; natives of all ranks, 256.

EMPLOYMENT OF THE INDIAN ARMY OUTSIDE OF INDIA.

One of the objects for which the Indian army is maintained is “To share in operations outside of India, or beyond the seas.” Instances of the use of Indian troops in distant Asiatic and even European expeditions are quite numerous. Thus in 1801, at the time the French were expelled from Egypt, an army from India cooperated with the British forces. In 1810 and 1811, Indian troops were sent to Mauritius and to Java.

To the Chinese expedition of 1842, the native Indian army contributed 6 regiments of infantry, the European troops on this expedition being also drawn from India.

In 1856-57 the Persian expedition, and in 1860 the Chinese expedition, were to a large extent, Indian; other instances are, the Abyssinian expedition of 1867; dispatch of Indian troops to Malta in 1878 (the first appearance of the Indian army as an European factor); cooperating force sent to Egypt, in 1882; expeditions to Suakin and Egypt, 1885.

In 1895, the strength of the Anglo-Indian armies was as follows (round numbers):

European troops, 3,500 officers, 70,500 men.

Native troops, 1,600 English officers, 145,000 native officers and men.

Total, 5,100 English officers, 215,500 enlisted men, English and native.

XVIII.—TOTAL ARMED STRENGTH (ENGLAND AND INDIA).

	ALL RANKS.	
	Establishments, 1895-96.	Effectives.
(a) REGULARS.		
Regular forces (regimental) home and colonial.....	146,249	144,081
Regular forces (regimental) on Indian establishment.....	78,168	77,465
Native Indian troops	146,600	147,300
Total.....	366,017	368,846
(b) RESERVES, MILITIA, ETC.		
Army reserve	85,100	84,873
Militia (including permanent staff and militia reserve)....	134,872	117,120
Militia, Channel Isles	3,996	3,460
Militia, Malta and Bermuda.....	1,362	* 1,172
Yeomanry cavalry (including staff)	11,678	10,914
Volunteers (including staff)	262,396	231,868
Grand total	865,421	816,853

* Malta only.

FRANCE.

I.—AREA AND POPULATION.

The Republic of France has an area of 536,000 square kilometers and a population, according to the last census, of 38,343,000, or about 74 per square kilometer.

II.—AVAILABLE STRENGTH.

According to the recruiting returns for 1894, the registered number of young men of the class of 1895, that is, the class of young men who attained the age of liability to military service in that year, amounted to 330,138. According to the same authority, the numbers of young men postponed from the classes of 1892 and 1891 were 50,373 and 21,618, respectively. After deducting the men pronounced unfit for service, and the men exempted or postponed for various reasons, 244,643 youths were incorporated, amounting to 0.63 per cent of the population, and 74 per cent of the registered number of the class of 1893. There were also in the same year (1894), 18,177 voluntary enlistments in the army. The total contingent serving that year amounted to 500,624 and the total peace strength, to 544,057 noncommissioned officers and men, the number actually present amounting to 497,638 non-commissioned officers and men.

III.—CONDITIONS OF SERVICE.

Liability to service rests uniformly on all classes of the republic. It commences with the completed 20th year, and continues for 25 years. Substitutions are no longer allowed. All able-bodied Frenchmen are bound to serve 3 years in the active army; 10 years in the reserve of the active army; 6 years in the territorial army, and 6 years in the reserve of the territorial army.

EXEMPTIONS AND EXCLUSIONS.

Citizens who are physically unfit for service are exempted. Those who have been convicted of infamous crimes, or sentenced to loss of civil rights, or to transportation, are in general, excluded from serving; and some, who have been convicted of minor crimes only, while excluded from serving at home, are sent to serve in Africa, in one of the special light infantry battalions (*bataillons d'infanterie légère d'Afrique*).

DEVIATIONS.

Deviations from the law as to length of service are permitted for various reasons: (1) In the interest of the budget; (2) for the public welfare, and (3) for the welfare of the individual.

1. **DEVIATIONS IN THE INTEREST OF THE BUDGET.**—In France, the maintenance of a large army is deemed a necessity. It is, however, an expensive necessity and every possible economy is made that will not impair the efficiency of the military establishment. To this cause must be attributed (a) the division of the contingent, and (b) postponement of service.

(a) *The division of the contingent.*—It has been found impossible, with a reasonable war budget, to maintain the full contingent with the colors for the full time of active service. Hence the division of the contingent into two portions, of which the second serves only one year. The youths of each class or year participate in a drawing of lots or numbers, and every year, after the operations of recruiting are finished, the minister of war fixes for each canton, proportionally to the total enrollment, the number of men who will be dismissed to their homes at the end of the first year's service. The favored ones are those who have drawn the higher numbers on the list. They remain, however, still subject to the disposal of the minister.

If, after the dismissal of the one-year men, the budgetary effective is still exceeded, the dismissal to their homes of another portion of the contingent becomes necessary. The men selected in this case are those who have drawn the numbers next above those of the one-year men.

(b) *Postponement of service.*—Youths who are unfit for service at the time their class comes before the recruiting authorities, but who are likely to develop and become ultimately able-bodied, are postponed a year and come up for examination before the recruiting authorities the next year with the class of that year. Some may even be postponed a second time, but after a second reexamination those still unfit for service are generally exempted.

2. **DEVIATIONS FOR THE PUBLIC WELFARE.**—Only one year with the colors is required, in general, of the categories enumerated below:

(a) Students for certain liberal careers useful to the public—young men who are studying to be public instructors, teachers, etc.;

Those who are studying to obtain certain academic or scientific degrees, or public prizes, among which are the diplomas of doctor of laws, doctor of medicine, pharmacist, etc., the diploma of the Ponts et Chaussées, the Prix de Rome, or certain state medals;

Youths who excel in various mechanical arts or trades and who are picked out by an official committee composed of artisans or master workmen;

Youths who are studying for the ministry or priesthood.

However, all the men of these various categories are called out for 4 weeks' training the year before they enter the reserve.

(b) Students of the polytechnic school, the forestry school, the central school of arts and manufactures, and the military medical school.

Students who enter the polytechnic and forestry schools must contract to serve 3 years; in the central school the engagement is for 4 years. As in all of these schools, military instruction is given, the time necessary to graduate is considered as actual service, and is deducted from the engagement.

Graduates of the polytechnic school entering the civil services, and graduates of the forestry school, must serve one year as second lieutenants in the reserve.

Graduates of the central school serve one year in the reserve as second lieutenants or as enlisted men, depending on their military aptitude.

All students who fail to graduate in any of the above schools must serve out the time of their engagement in the army as enlisted men.

Students of the military medical school (also of the veterinary schools) contract to serve in the army at least 6 years from the date of their first commission. Those who fail to graduate must serve 3 years as enlisted men.

(c) *Frenchmen in the colonies.*—In most of the colonies, a young man is released from service at the end of his first year, but remains still disposable.

(d) *Frenchmen residing abroad*.—In order to promote the French foreign trade, French youths residing abroad in commercial or similar situations are entirely exempt from service as long as they retain such situations.

3. **DEVIATIONS FOR THE WELFARE OF THE INDIVIDUAL**.—On their own request and after serving one year with the colors, young men of the following categories are furloughed until they enter the reserve: (a) Certain youths who are classed as heads of families (*chefs de famille*), such as the eldest son of a widow; (b) certain youths who have brothers in the service, or whose brothers have been killed or disabled in the service, and (c) certain youths who are indispensable to the support of their families.

SERVICE IN THE RESERVE.

During their 10 years in this category, the men of the reserve are all called out for two maneuvers, lasting four weeks each.

SERVICE IN THE TERRITORIAL ARMY.

The territorial army is always organized but the men remain at their homes. They are subjected to one training of two weeks during their service. The reserve of the territorial army is called out for service only in time of war, when the youngest classes are drawn upon first. In peace they are merely subject to a muster of one day up to the time they have completed their 45th year.

VOLUNTEERS.

There are no longer any one-year volunteers, in the sense in which that term is used in most of the continental services. This category was abolished by the law of 1889. Voluntary enlistments in the army are permitted, however, in the cases following: (a) Voluntary enlistment proper; (b) voluntary enlistment to serve during a war.

(a) *Voluntary enlistments proper*.—Instead of waiting until he has reached the age of compulsory military service, a youth may volunteer one or two years beforehand. As a rule the privilege of volunteering ceases after the young man has been definitely enrolled by the council of revision. Men who have been exempted from serving, or who have been assigned to any of the so-called auxiliary services, also have the privilege of volunteering.

Youths who fulfill the required physical and moral conditions and certain legal formalities are allowed to volunteer for 3, 4, or 5 years. Such of these volunteers as are studying for certain liberal careers (see "Conditions of Service," Deviations 2) are allowed the benefits of the law applying to such cases, that is, they serve only one year with the colors.

(b) *Voluntary enlistment to serve during a war*.—Any Frenchman who has fulfilled all his service obligations, in the active army and its reserve and in the territorial army, is allowed in time of war to volunteer for the duration of the war in any corps of the army.

Enlistments in the special troops in Africa.—In the native regiments of Algeria, the "Tirailleurs algériens" (infantry) and the "Spahis" (cavalry), voluntary enlistments are allowed for 4 years. In the regiments of the Foreign Legion, enlistments of foreigners are voluntary and are for 5 years. In certain cases, Frenchmen are allowed to enlist in the Foreign Legion.

IV.—MILITARY EXPENDITURE.

The annual war budget, 1895, was in round numbers \$123,090,000.

V.—COMMAND AND STAFF OF THE ARMY.

By the terms of the French constitution, the president of the republic controls and disposes of the armed forces, and appoints all military officers. He delegates, however, the minister of war as chief of the army. Every act of the president of the republic must be countersigned by a minister, and the minister of war, like other ministers, is responsible to the chambers, as one of the ministerial body, for the policy of the government, and is individually responsible, also, for his personal acts. He is especially responsible for the instruction and administration of the army. At the same time, he is charged with the direction and surveillance of the various branches of the personnel of the army. The minister is assisted and seconded in his duties by various organs, viz:

1. The superior council of war, charged with examining all questions connected with national defense and preparation for war. This council consists of 10 members, two, the minister and chief of the general staff, being members "ex officio," the latter being the "reporter." Eight other members are appointed by decree from the generals of division who are occupying the highest military positions. A subchief of the general staff acts as secretary.

2. The technical committees, of which there is one for every arm and service of the establishment.

3. The ministry of war, which consists of—

- (a) The cabinet of the minister, which is charged with general correspondence, and with the personnel of the central administration.
- (b) The staff of the army, the bureaus of which are charged with everything that relates to organization, mobilization, statistics, study of foreign armies, the general instruction of the army, and the service of the railways and the lines of communication (to the staff of the army are also subordinate the service of military telegraphy, the historical section, and the geographical service).
- (c) The direction of the "Contrôle," which is charged with safe-guarding the interests of the treasury and the rights of persons, and of ascertaining whether, in their administrative features, the different laws, orders, decrees, etc., are duly observed.
- (d) Seven directions of the different arms and services, viz, infantry, cavalry, artillery, engineers, administrative services, powder and saltpeter service, and medical service (each of these directions is charged with the personnel, the matériel, the technical instruction, and the organization of its own particular arm or service).

REORGANIZATION OF THE FRENCH WAR MINISTRY.

The minister of war in France is usually a superior general officer of the army. Twice, however, since the Franco-Prussian war, the war minister has been a civilian, the present minister being an instance. In order that the workings of the civil administration might be under one responsible person, and the strictly military administration under another (the latter being a military officer) the present minister has appointed a secretary general, who discharges the civil functions indicated above. The chief of the general staff has been placed at the head of the directions of the different arms and services, in addition to his other duties, as regards all matters pertaining to the organization or instruction of the troops, mobilization, armament, defense of the national territory, and the supply of war matériel. Both the

secretary general and the chief of the general staff have power to sign for the minister in their own provinces respectively.

This arrangement leaves the minister of war free to devote himself to the parliamentary business of the army and goes a long way toward making the chief of the general staff the real commander in chief of the French army. (Compare the English order in council defining the duties and powers of the commander in chief.)

ORGANIZATION AND FUNCTIONS OF THE STAFF.

These matters require fuller explanation. The staffs in the French army comprise a variety of personnels and services, viz: (1) The general staff (*état-major général*); (2) the staffs proper (*états-major proprement dits*); the latter being divided into (a) general staff services, and (b) special staffs, or staffs of the special arms. The *general staff services* must be distinguished from the general staff.

1. **THE GENERAL STAFF (ÉTAT-MAJOR GÉNÉRAL).**—To this body belongs the superior personnel intrusted with the general commands of the army and its larger fractions, such as commanders of corps, divisions, and brigades, chief of staff, officers commanding in chief the artillery or engineers of an army, and similar functions. The chiefs of the administrative services, with or without assimilated rank, do not belong to the general staff, which is composed of the marshals of France,* the generals of division, and the generals of brigade.

2. **THE STAFFS PROPER.**—The staffs proper are the aids of the commanders and assist them in the discharge of their functions, prepare their orders and transmit them, and see that they are executed. The *general staff services* are the only ones that will be dealt with under this head, the special staffs being treated under their respective arms.

The general staff services and general services deal with matters which concern the army and its fractions, considered as a whole. There are two entirely different and distinct general services, viz, the military staff service (*service d'état-major*), and the "contrôle" service, or the inspection of the administration of the army.

It is not proposed to describe in detail the organization and functions of the "contrôle" service. An outline has already been given with regard to this matter. The military staff service (*service d'état-major*) will, however, be explained at some length.

THE MILITARY STAFF SERVICE.—Excluding the military household of the president of the republic, and the special staff of the minister of war, which are personal staffs not requiring any particular explanation, the military staff service comprises the staff of the army and the following staffs with the troops and commands: The staffs of the military governments of Paris and Lyons; the staffs of corps, divisions, and brigades; the staffs of the territorial divisions and subdivisions; the staffs of the governments of the various fortresses; the officers at the disposition of the marshals of France, and certain other general officers of high rank; the military attachés and members of military missions abroad, and the staffs of the principal artillery and engineer commands.

First.—The staff of the army: This body is the organ of preparation for war. It is specially intrusted with the study of questions relative to the general defense of the national territory and the preparation for military operations. It deals with the mobilization of the army and its concentration in case of war; the utilization of railways and canals, of the military telegraphs and balloons, etc.; the organization and direction of the services in rear

* This grade died out with Marshal Canrobert. The grade of marshal remains in abeyance pending the passage of a law which shall provide for further promotions.

in the field army; the organization and general instruction of the army, and the preparation of the grand maneuvers; the study of foreign armies and of the different theaters of operations; the collection of statistical and historical documents; military missions to foreign parts; preparing and coordinating in the labors of the superior war council, etc.

The staff of the army consists of—

Four military bureaus properly so-called, dealing respectively with organization and mobilization, foreign armies, military operations and general instruction of the army, and services of the railways.

A section dealing with the personnel of the "service d'état-major."

A section dealing with the matériel and accounts of the staff service.

An historical section.

An African section.

The geographical service of the army.

The military telegraph service is also attached to the staff of the army, but to which bureau or section is not stated.

At the head of the staff of the army is placed a general of division who bears the title of chief of the general staff of the army (*chef d'état-major général de l'armée*), a title which is somewhat confusing. He is a general and chief of staff of the army, and not the chief of the general staff (*état-major général*), which, as has been seen, is composed of the marshals and generals of the army, either commanding, or assignable to command. He is directly subordinate to the minister of war and acts under his orders. Recently he has been given powers which apparently make him the equivalent of the English commander in chief. In time of war he passes under the orders of the commander in chief of the principal group of armies, as his chief of staff (*major-général*).

Personnel of the staff of the army.—The staff of the army is composed of (a) officers with the staff brevet placed "hors cadres" (seconded) for staff service; (b) 12 field officers forming the cadre of the geographical service; (c) exceptionally of officers with or without staff brevets who are chosen for their special aptitudes and detached from their arms, and (d) the corps of archivistes.

Second.—The staffs with the troops and commands (the staffs of the military governments of Paris and Lyons, the staffs of corps, divisions, etc.): The mission of these officers is to assist their commanding officers and to secure the transmission and execution of their orders. They perform duties which may be designated as staff duties proper, also the duties of assistant adjutants general and aids-de-camp. There is no separate "adjutantur" as in the German army.

These staffs are composed of (a) officers of the staff service who are all "hors cadres;" (b) orderly officers, either staff officers or officers on detached service, and (c) officers who have graduated at the war school and who are attached for two years.

Appointment and detail of officers of the general staff services.—Officers of the staff of the army, and of the staffs of the different commanders, are qualified and appointed as follows:

The staff brevet is granted to officers who have passed successfully through the superior war school and to officers (captains and field officers) who can pass certain examinations fixed by the minister and equivalent to the graduating examinations of the war school. At present (1895) 640 officers with the staff brevet are on temporary duty in the staff service.

Officers graduating from the superior war school with the staff brevet are immediately attached to some staff for two years. During this probationary period, however, they must

serve for a while with troops, but in an arm different from their own. While serving this two years' probation all these officers are placed "hors cadres" (seconded), as are also all the officers in the second year of the superior war school. After finishing this two years' service they may be either retained for staff duty or sent back to their own arms until further orders.

Brevet captains, brevet majors, and brevet colonels of the staff can not be promoted a grade unless they have commanded in their own arms, for at least two years, a unit corresponding to their respective grades. This insures a return of staff officers to duty with troops from time to time.

Officers of the staff service are placed "hors cadres." They continue to belong to their respective arms, and to be promoted in them, in accordance with the regular rules.

Officers who have been brevetted in the staff, and who are not on staff duty, remain with their troop units and form the reserve of the personnel of the staff.

In case of mobilization the officers necessary for the staffs are drawn from various sources, as follows:

All officers who have the staff brevet and who are serving with troops are seconded and become available for staff duty;

Officers of the reserve or of the territorial army who have the staff brevet are called out;

Officers without the staff brevet, if deemed qualified, may also be put on staff duty.

The corps of *archivistes* belongs to the staff, but its members are, properly speaking, military officials, and not military officers. They attend to the details of the office work of the staffs, to the correspondence and "paper work," and records. They have a hierarchy of their own, the grades of which are not assimilated to those in the combatant hierarchy. The actual clerical labor of the staffs is performed by details of the *sections of staff secretaries*, who are enlisted men.

VI.—ORGANIZATION.

(a) GENERAL.

For the organization of the active and territorial armies, the territory of France is divided into 18 regions, and each region into 8 (in one case 9) subregions. Each region is occupied by an army corps, which forms its regular garrison. Each subregion corresponds to an active regiment of infantry, a reserve regiment, and a territorial regiment.

Algeria forms a 19th region, and a special army corps (the 19th) is assigned to it.

There are also two so-called superior military commands—that of Paris, comprising the departments of the Seine, and Seine and Oise, and that of Lyons, comprising the department of the Rhone and some of the contiguous communes of the departments of the Ain and the Isère. These two commands are intrusted to two generals of division, who take the names of military governors of Paris and Lyons respectively. The governor of Lyons commands, at the same time, the 14th region and 14th corps.

In addition, the governments of the principal fortresses are organized in time of peace. A fortress is commanded, according to its importance, either by a general of division with a general of brigade as second in command, or else by a general of brigade.

At the head of each army corps is placed a general of division who bears the title of "general commanding (such) army corps." He commands the troops and the region; also the reserve and the territorial army of the region. His authority extends to all the services and to all the military establishments connected with the armed forces under his command.

The generals commanding divisions and brigades exercise also the territorial command of the sections of the corps region occupied by their respective divisions and brigades.

For troops that are serving outside of their own corps region, as is the case in the military governments of Paris and Lyons and in some other cases, the corps commander still retains control in matters of mobilization and kindred subjects, but for most other purposes such detached troops are under the command of the superior military commander of the region or government where they are serving.

(b) THE ARMY CORPS.—PEACE FOOTING.

The normal composition of the army corps is 2 divisions of infantry of 2 brigades of 2 regiments each; 1 brigade of cavalry; 1 brigade of artillery; 1 battalion of engineers, and 1 squadron of train. The following units are also attached to each corps: 1 section of staff secretaries, 1 section of clerks and workmen of the military administration, 1 section of sanitary troops (infirmiers); also 1 battalion of rifles not "endivisionné." These battalions are in some cases serving outside of their corps region, generally on the frontiers. If serving at home, they are usually attached to one of the infantry divisions.

Finally an army corps has its own staffs and special services necessary for its proper administration.

The 6th corps region, on the Franco-German frontier, has an exceptionally strong garrison.

Besides the 6th corps itself, which is of the usual composition except that it has 4 artillery regiments, there have been formed in this corps region, out of the "regional" regiments of infantry stationed there, 2 new divisions of infantry—the 39th and the 40th.

The brigades in the Vosges, which are formed of the "regional" regiments and rifle battalions stationed there, were, in the early part of 1895, formed into a new division, numbered the 41st. It consists of 3 brigades.

The extra cavalry consists of 4 divisions, numbering 10 brigades, and 1 independent brigade, or 11 in all.

(c) THE ARMY CORPS.—WAR FOOTING.

The war organization of the army corps calls for 2 divisions of infantry; 1 battalion of rifles; 1 brigade of cavalry; the corps artillery, consisting of 2 groups of field artillery of 3 batteries each, 1 group of 2 horse batteries, and 2 artillery ammunition sections; the artillery park; 1 corps bridge train; a reserve company of engineers; the headquarters ambulance or flying hospital; 8 field hospitals, and various auxiliary services.

VII.—THE DIVISION.

(a) THE INFANTRY DIVISION.

The infantry divisions are numbered from 1 to 41 inclusive. These numbers are not continuous, however, as the 37th and 38th divisions do not exist in time of peace.* The numbers borne by the divisions have a regular relation to the army corps to which they belong, thus, the 1st and 2d divisions belong to the 1st army corps, the 3d and 4th to the 2d army corps, the 9th and 10th to the 5th army corps, etc. There are also some extra divisions, as has been seen in referring to the constitution of the 6th corps, and there are some divisions not numbered.

*These divisions would be organized, in time of war, from the divisions of the 19th corps, and the division of occupation in Tunis.

The divisions not numbered are in Algeria and Tunis. The divisions of the 19th corps, of which there are three, bear instead of numbers the names of the provinces. These, with the division of occupation in Tunis, make four African divisions. Their constitution is not regular, varying according to the supposed necessities of the case.

This makes in all 43 divisions, most of them having 2 brigades. The 41st division, however, has 3 brigades. The numbers of the brigades bear a regular relation to the numbers of the divisions, thus, the 1st division is made up of the 1st and 2d brigades, the 10th division of the 19th and 20th brigades, etc. The brigades of the 19th corps bear numbers, but not in the same series as those in France; thus, there are the 1st, 2d, 3d, and 4th brigades of Algerian infantry, and the Tunisian brigade. There is also an unnumbered brigade at home—the regional infantry brigade of Lyons, which is stationed in the 14th region, and is under the orders of the military governor of Lyons.

The brigades generally contain 2 regiments. In the extra divisions (39th, 40th, and 41st) 2 or 3 rifle battalions often take the place of an infantry regiment. The numbers borne by the regiments have no relation to the numbers of the brigades.

On mobilization half a platoon of cavalry is attached to the staff of the division as escort, and the division takes the field with 2 brigades of infantry, the divisional artillery consisting of 2 groups of 3 field batteries each, 1 infantry ammunition section and 2 artillery ammunition sections, 1 company of engineers, the divisional ambulance, and the divisional subsistence train.

(b) THE CAVALRY DIVISION.

There are in time of peace, 7 divisions of independent cavalry, each consisting of 3 brigades of cavalry and a group of 2 horse batteries. The brigades are composed of 2 regiments of cavalry of the same kind, cuirassiers, dragoons, hussars, or chasseurs (rifles). The 7th division at present has only 2 brigades, one of which has 3 regiments. These independent cavalry divisions are quartered, as far as possible, on the frontiers and in the military government of Paris.

In time of war, the independent cavalry division would consist of 3 brigades of cavalry of 2 regiments each; 1 group of 3 horse batteries (80-mm. guns); the divisional ambulance, and the divisional subsistence train.

VIII.—THE INFANTRY.

(a) GENERAL.

The infantry consists of—

(1) 163 regiments, viz, 145 regiments, called subdivisinal, which are distributed among the 18 army corps stationed at home, and 18 regiments, called regional, intended to garrison the principal fortified places. The subdivisinal regiments are thus called because they draw their complements from a single subdivision of an army corps region. The regional regiments are so called because they draw their recruits from the whole of the army corps region.

(2) 30 battalions of foot riflemen (*chasseurs à pied*), viz, 18 assigned to the army corps stationed at home, and 12 called alpine battalions, assigned to the 14th and 15th regions.

(3) 4 regiments of zouaves for service in Algeria and Tunis.

(4) 4 regiments of Algerian skirmishers (*tirailleurs*).

(5) 2 regiments of the Foreign Legion.

(6) 5 battalions of African light infantry.

(7) 4 disciplinary companies, stationed in Algeria and Tunis.

(b) STRENGTH.—PEACE FOOTING.

The subdivisional regiment consists of 4 battalions of 4 companies each, and 1 section "hors rang" (a section not incorporated in any of the companies of the regiment). Only three battalions, however, are entirely organized in time of peace. The 4th battalion has only a cadre, consisting of 2 field officers, 8 captains, and 4 lieutenants.

On mobilization, the cadre of the 4th battalion is expanded into a reserve regiment of 3 battalions, bearing the number of the active regiment, increased by 200. Each active company of the regiment transfers to the new regiment 3 noncommissioned officers and 4 corporals, as well as a few privates. The necessary officers are drawn from the officers of the reserve and those of the territorial army.

The strength of a subdivisional regiment is 66 officers and 1,591 men, and that of a battalion, 14 officers and 502 men.

The regiments of the 6th corps are of increased strength.

The regional regiment consists of 4 battalions of 4 companies each and 1 section "hors rang." The fourth battalions of these regiments are already organized in time of peace. The strength of the regional regiment is 66 officers and 2,054 men.

The rifles.—Most of the corps rifle battalions have 6 companies and a section "hors rang." (One battalion has still only 4 companies.) The 12 Alpine battalions are of 6 companies and a section "hors rang," and are of increased strength. Each battalion has a complementary cadre to form the nucleus of a reserve battalion. It consists of 1 captain and 1 lieutenant.

The battalion of 4 companies numbers 21 officers and 552 men, the battalion of 6 companies, 29 officers and 924 men; the Alpine battalions have 175 men per company, while the others have only 133.

The zouaves.—These regiments have 4 battalions of 4 companies each, also two depot companies (one of which is stationed in France), and a complementary cadre consisting of 2 field officers, 8 captains, and 6 lieutenants. Each regiment has 89 officers and 2,551 men.

The Algerian skirmishers.—Each regiment has 4 battalions and a depot company, the battalions having 4 companies. The second lieutenants and one-half the sublieutenants are natives; all the other officers are French. The accountant noncommissioned officers are French; two-thirds of the other noncommissioned officers and corporals and almost all the privates are natives. Strength of the regiment, 103 officers and 2,632 men.

The foreign regiments.—Each has 5 battalions and 2 depot companies, the battalions having 4 companies. These regiments are principally intended to receive such foreigners as wish to enlist in the French service. Strength of the regiment of 5 battalions, 81 officers and 3,052 men. The strength of the depot companies is not known.

The African light infantry battalions.—Each of these battalions consists of 6 companies, and a complementary cadre of 1 captain and 1 lieutenant. They are intended to receive the men who have been condemned for certain grave offenses, which do not entirely exclude them from service, and which were committed either before entering the service, or during their service with the colors. Strength of a battalion, 33 officers and 1,519 men.

The disciplinary companies.—These companies are intended to receive the men who have mutilated themselves, those who have been guilty of mutinous acts, and those who are considered incorrigible. The worst cases in these companies are assigned to the sections of pioneers, and are subjected to a more rigorous treatment than the others, who are known as "fusiliers."

The cadre of a disciplinary company consists of 4 officers and 42 noncommissioned officers and men. The number of privates is not fixed.

(c) STRENGTH.—WAR FOOTING.

Normal infantry regiment of 3 battalions, 68 officers, 3,120 men; normal battalion, 19 officers, 1,010 men. These figures are not exact, the strengths of the cadres only being accurately known.

IX.—THE CAVALRY.

(a) GENERAL.

The cavalry consists of—

- (1) 13 regiments of cuirassiers (heavy cavalry).
- (2) 31 regiments of dragoons (cavalry of the line).
- (3) 21 regiments of chasseurs and 14 regiments of hussars (light cavalry).
- (4) 6 regiments of chasseurs d'Afrique and 4 regiments of spahis (African cavalry).
- (5) 1 squadron of Senegalese spahis.
- (6) 2 squadrons of Soudanese spahis.

When the state of the national finances will permit it, there will be formed two more regiments of cavalry, viz, 1 regiment of cuirassiers and 1 of dragoons. This will raise the number of cavalry regiments to 91, of which 81 will be stationed at home and 10 in Algeria and Tunis. There are also 8 companies of remount cavalry for service in the remount depots, etc. Of these, 3 are stationed in the remount depots of Algeria.

The cavalry is organized in brigades of 2 regiments each, bearing the numbers of their respective army corps, while the remaining brigades are organized into 7 divisions of independent cavalry. The brigades attached to army corps consist, as a rule, of 1 regiment of dragoons (cavalry of the line) and 1 regiment of chasseurs or hussars (light cavalry).

The regiments of cavalry in Africa are not included in this organization. They are subordinate to the general commanding the cavalry in Algeria, and are organized in 4 brigades, 3 for Algeria and 1 for Tunis, each brigade having two or three regiments.

(b) STRENGTH.—PEACE FOOTING.

All the regiments, according to the law of the 25th of July, 1893, have 5 squadrons. This also applies to the African regiments, with the exception of the 1st regiment of spahis, which has 6 squadrons, 1 squadron of this regiment being detached for service in Senegal, and paid out of the naval budget.

The reorganization of the cavalry, consequent upon the passage of the above law, has not yet been fully complied with. The actual strengths of the regiments are considerably in excess of the legal strengths, both in officers and men. The legal strength of a regiment, at home or in Africa, is 37 officers and 792 men, and the regiment should have 1 colonel or lieutenant colonel commanding. As a matter of fact, nearly all the regiments have both a colonel and a lieutenant colonel, and the average strength is 43 or 44 officers and over 800 men.

A very good foreign authority gives the peace strength of a cavalry regiment as 45 officers and 787 men. This is very nearly the budgetary strength in officers for most of the regiments, and is exactly the budgetary strength in men of the regiments of chasseurs d'Afrique.

The legal peace establishment of a squadron is 4 officers (1 captain commandant, 1 second captain, and 3 lieutenants) and 150 men. Actually, however, most of the squadrons have

4 lieutenants, making a total of 6 officers. The budgetary strengths are rather in excess of 150 men per squadron.

(c) STRENGTH.—WAR FOOTING.

The regiment takes the field with 4 squadrons only, the 5th becoming the depot. Strength of the field regiment, 35 to 37 officers and 639 to 650 men; field squadron, 5 officers and about 150 men.

X.—THE SPECIAL ARTILLERY STAFF.

The duties of the artillery staff (*état-major particulier d'artillerie*) are generally as follows:

(a) *With armies.*—The performance of artillery staff duties with armies, army corps, etc., and the general “direction” of the various services of the artillery arm, including the establishment and construction of batteries, the supplying of the army with arms, ammunition, etc., and exceptionally the establishment and construction of emergency bridges from materials on hand in the country.

(b) *In time of peace and at home.*—The supervision of the various establishments and services of the artillery arm, and the performance of artillery staff duties with the artillery commands.

These duties include the manufacture and supervision of the manufacture of all kinds of arms required for the military service; the verification and preservation of all kinds of matériel and munitions of war; the construction and maintenance of the special establishments and shops of the artillery arm; and the manufacture of all matériel required for army transportation.

The personnel of the artillery staff consists of (1) the artillery staff proper; (2) the artillery storekeepers (*gardes d'artillerie*); (3) the inspectors of arms (*contrôleurs d'armes*); (4) the artillery foremen (*ouvriers d'état*), and (5) the ordnance sergeants (*gardiens de batterie*).

1. THE ARTILLERY STAFF PROPER.—This comprises 37 colonels, 56 lieutenant colonels, 99 *chefs d'escadron* (majors), and 108 captains of the 1st and 2nd class, making a total of 300 officers. Besides, the student second lieutenants of the second division of the school of application for artillery and engineers are also included in the artillery staff. As soon as they finish the studies of the second year, however, they are transferred to regiments, etc., and are no longer counted as part of the artillery staff.

The artillery staff is not a closed corps. Officers of artillery may be assigned to the staff or line and transferred from one to the other, in accordance with the decisions of the minister of war.

The staffs of the various artillery commanders (artillery brigadiers, command of the fortifications of Paris, etc.) are made up (1) of artillery officers, with or without the staff brevet, and belonging to the special artillery staff or else detached from their batteries and regiments; (2) of orderly officers, with the staff brevet, or else of officers belonging to the special artillery staff or detached from their batteries and regiments, and (3) of a number of *gardes d'artillerie*.

These staffs have for chiefs artillery majors or lieutenant colonels, who bear the title “chief of staff of (such) artillery command.”

What is called the active part of the staff of an artillery command separates from the territorial part on mobilization. The first part marches with the troops; the second part remains behind.

There are 32 artillery "directions," of which 27 are in France, 3 in Algeria, 1 in Tunis, and 1 in Corsica. At the head of each is placed a colonel or lieutenant colonel of artillery staff as director.

The director, who is chief of what may be called the artillery administration of his province, has under him a subdirector ranking as lieutenant colonel or major, the artillery commands of the different arrondissements, as well as the officers and employees of the artillery arm serving in the direction. Under the direction are also a number of "places comparables" (artillery depots).

The personnel of the artillery directions includes officers of the artillery staff, artillery storekeepers and inspectors of arms, artillery foremen (*ouvriers d'état*), and ordnance sergeants (*gardiens de batterie*); also detachments or companies of artillery workmen.

As regards general service and personnel, the artillery directions are directly subordinate to the general commanding the brigade of corps artillery. The artillery directions within the superior commands of groups of fortified places, are subordinate, as regards preparations for defense, to the general having superior command of the defense.

In matters concerning the supplying of the general services of the army, the artillery directions are directly under the war ministry. It is the duty of the artillery directors to keep all branches of the army supplied with arms and ammunition, etc.

There are 19 artillery schools, one in each artillery brigade. These are under the charge of field officers of the artillery staff as directors. The object of these schools is to complete the training of the lieutenants or second lieutenants of the arm, and of the noncommissioned officers who are considered fit for promotion either to the grade of officer or *garde d'artillerie*.

The central school of military pyrotechnics is also under the direction of an officer of the artillery staff. The object of this school is to educate men in the handling and manufacture of pyrotechnics, fuses, etc. These men are then sent to the artillery units to which their training will be of most value.

The other artillery establishments presided over by the officers of the artillery staff are as follows: 8 artillery arsenals or factories (*ateliers de construction*) for the manufacture and repair of guns, gun carriages, and other artillery carriages and attachments; the military powder works at Bouchet;* 3 small-arms factories (*manufactures d'armes*); 1 inspection and 5 subinspections of iron works (*forges*)—these establishments are private works where orders are executed for iron and steel castings, etc., also projectiles, required for the service—and the gun foundry at Bourges.

2. THE ARTILLERY STOREKEEPERS (*GARDES D'ARTILLERIE*).—They consist of: Principal guards—1st class, 17; 2d class, 94; guards—1st class, 94; 2d class, 145; 3d class 120; total 540.

The duties of these guards or storekeepers are the preservation of the *matériel* and implements of the artillery service, the details relating to the service and issue of this *matériel* in fortresses, superintendence of magazines and laboratories, the responsibility for articles stored therein, and the keeping of accounts and books relating to artillery *matériel*, etc.

These men rank as officers. Their grades are not assimilated in any way, however, to the grades of the military hierarchy. They are recruited from the *ouvriers d'état* (artillery foremen) and the *gardiens de batterie* (ordnance sergeants), and from noncommissioned

*All the other powder and saltpeter works of the state are under the corps of engineers of the powder and saltpeter service, a corps which is directly under the minister of war, and which is recruited from the graduates of the polytechnic school. The members of this corps have the status of officers, but not assimilated rank.

officers of artillery who have held their grade at least two years, and who have been reenlisted or retained in the service. All candidates should be at least 40 years old. Admissions depend on the result of competitive examinations.

3. **CONTRÔLEURS D' ARMES (INSPECTORS OF ARMS).**—These comprise: Principal inspectors—1st class, 4; 2d class, 16; inspectors—1st class, 20; 2d class, 40; 3d class, 80; total, 160.

These men are employed as inspectors in the small-arms factories and in the different directions of artillery. They are considered as *military employees*, and have neither the title nor the rank of officers. Neither are their grades assimilated in any way to those of noncommissioned officers. Those on duty in the small-arms factories are taken exclusively from the workmen on the rolls of these establishments. Those intended for service in the directions of artillery are taken exclusively from the chief armorers of the 1st class of any arm of the service. Although they have no rank as officers, they enjoy all the rights guaranteed by the law regulating the status of officers.

4. **OUVRIERS D'ÉTAT (ARTILLERY FOREMEN).**—These consist of: Foremen, 1st class, 105; foremen, 2d class, 105; total, 210.

These men are employed as foremen in the various departments of the different artillery establishments. They are appointed by the minister of war and rank as adjutant noncommissioned officers. They are subject to the laws, orders, and regulations governing the active army.

Foremen of the 2d class are appointed from noncommissioned officers of artillery who have at least 6 years' service, particularly from those belonging to the companies of artillery workmen (*ouvriers d'artillerie*).

Foremen of the 1st class are taken from the foremen of the 2d class of at least 3 years' seniority, and from 1st sergeants and adjutant noncommissioned officers of 6 years' service.

Artillery foremen of the 1st class are allowed to compete for the grade of *garde d'artillerie*, 3d class.

5. **GARDIENS DE BATTERIE (ORDNANCE SERGEANTS).**—They consist of: Ordnance sergeants, 1st class, 130; ordnance sergeants, 2d class, 130; total, 260.

The duties of the *gardiens de batterie* are to take charge of the matériel in the coast batteries and fortifications, to act as fort keepers and keepers of military buildings belonging to these works, and to command detachments assigned to these forts and batteries, when no officer or no higher noncommissioned officer is present. They are under the direct orders of the commandant of artillery, but take orders from the engineer commandant with regard to all duties connected with the engineer service (fort keepers, etc.).

The *gardiens de batterie* are warranted by the minister of war. They are subject to all the laws, orders, and regulations governing the army.

The appointments to the lower grade are made from the noncommissioned officers of artillery of not less than 7 years' service.

The appointments to the 1st class grade are made from *gardiens* of the 2d class of not less than 3 years' seniority, and from the 1st sergeants and sergeants having at least 7 years' service. Adjutant noncommissioned officers may be considered in drawing up the recommendations for these appointments, provided they make application therefor.

The *gardiens de batterie*, 1st class, may compete for positions in the grade of *garde d'artillerie*, 3d class.

XI.—THE ARTILLERY LINE.

This consists of—

- (1) 18 battalions of foot artillery (only 16 are organized), each of 6 batteries.
- (2) 40 regiments of field artillery, of 12 batteries each.
- (3) 12 mountain batteries, attached to the 12 battalions of Alpine rifles.
- (4) 10 companies of artillery workmen (*ouvriers d'artillerie*), whose duties are to construct all artillery matériel that is not purchased from private firms.
- (5) 3 companies of artillery artificers (*artificiers d'artillerie*) or laboratory workmen, employed in the school of pyrotechny at Bourges, at the Bouchet powder mills, and by the committee at Versailles charged with the reception of powders and explosives.

It is to be noted that the composition of the regiments of artillery is not strictly in accordance with the normal organization given above. The law of the 29th of June, 1894, reorganizing the artillery and engineers, allows the president to fix by a decree the number of batteries that each battalion and regiment shall contain.

1.—*The Foot Artillery.*

The law of the 25th of July, 1893, provides for the formation of the two additional regiments of foot artillery, each of 6 batteries, when the finances will admit of it. The troops of this arm are intended for service in the various fortified places, sometimes in the seacoast fortifications. Most of the battalions and batteries are serving at home, but 2 batteries are in Corsica.

(b) STRENGTH.—PEACE FOOTING.

The battalion consists of a staff and noncommissioned staff and 6 batteries; strength, 30 officers and 790 men; strength of a battery, 4 officers (1 captain commandant, 1 second captain, 1 first lieutenant, and 1 second lieutenant) and 129 men. A battery of increased strength is provided for Tunis, but is not serving there at present.

(c) STRENGTH.—WAR FOOTING.

Battalion, 30 officers and 1,516 men.

Battery, 4 officers and 250 men.

2.—*The Field Artillery.*

. (a) GENERAL.

The field artillery consists of 19 brigades of 2 regiments each, one of which is assigned to each of the 19 army corps. The artillery of the 6th corps has an exceptional organization, consisting of two sectors of 2 regiments each, making 4 regiments for this corps. The brigades bear the numbers of their respective army corps, and are commanded by brigadier generals coming from the artillery arm. Theoretically the 1st regiment of each brigade, which is called the divisional regiment, should comprise 4 groups of 3 field batteries each. This regiment should furnish to each division of the corps, on mobilization, 2 groups of 3 field batteries each, and 1 infantry and 2 artillery ammunition sections.

The second regiment of the brigade, called the corps regiment, should consist also of 4 groups—3 groups of 3 field batteries each, 1 group of 2 horse batteries, and a 12th battery, also horse artillery, which is usually detached from the regiment.

On mobilization the corps regiment furnishes the artillery of the army corps (9 field batteries) and that for the divisions of independent cavalry (3 horse batteries).

Actually the organization of the field artillery regiments as laid down in the presidential decree on that subject, differs very widely from the theoretical organization. The number of batteries in a regiment varies from 9 to 16. The artillery brigades of the 14th and 15th corps have battalions of mountain or Alpine batteries attached, of 8 and 5 batteries respectively, so that the total number of Alpine batteries is actually 13 instead of 12. These Alpine battalions are attached for administrative purposes to the 2d and 19th regiments respectively, which are within their own corps districts. The batteries are numbered continuously with other batteries of their respective regiments.

The 19th artillery brigade is not on duty in Algeria with its own corps but is serving at Vincennes, in the military government of Paris. The batteries serving in Algeria and Tunis, 12 in number, are provided for separately in the budget, and are extra batteries. They are attached for administrative purposes to the 12th and 13th regiments. Of these 12 batteries, 4 are serving as field batteries, 8 as mountain batteries, and 4 as foot (or fortress) batteries. A number of the field batteries of the field artillery regiments are also serving as mountain batteries.

The total number of batteries of all kinds in the French artillery as now organized is as follows:

	Field.	Horse.	Mountain.	Foot.	Total.
Field artillery regiments.....	421	52	10	-----	483
Alpine batteries.....	-----	-----	18	-----	18
African batteries.....	4	-----	8	4	16
Foot artillery battalions.....	-----	-----	-----	96	96
Totals.....	425	52	31	100	608

When the two new battalions of foot artillery are raised, the total number of batteries will be raised to 620, of which 112 will be foot batteries.

(b) STRENGTH.—PEACE FOOTING.

The normal regiment consists of the field and staff, noncommissioned staff, 1 platoon "hors rang," and 12 batteries. It is commanded by a colonel. Strength of the regiment of 12 field batteries, 71 officers, 1,284 men, and 775 horses, counting the officers' horses; strength of the regiment of 10 field and 2 horse batteries, 71 officers, 1,286 men, and 827 horses.

The normal field battery consists of 5 officers (1 captain commandant, 1 second captain, and 3 lieutenants), 103 men, and 61 horses.

The horse battery should consist of 5 officers, 105 men, and 87 horses.

The mountain battery on the normal footing consists of 5 officers, 103 men, 19 horses, and 42 mules.

The Alpine mountain battery consists of 5 officers, 155 men, 16 horses, and 80 mules.

The field batteries serving in Africa have 4 officers, 153 men, and 134 horses.

The mountain batteries in Africa have 4 officers, 238 men, 27 horses, and 140 mules.

In time of peace all the batteries have on hand the matériel that will be required in war, but the field and horse batteries serving in France have barely enough animals to horse the guns.

All the batteries are of 6 guns. The field batteries have the 90-mm. gun, the horse batteries the 80-mm. gun, and the mountain batteries the light 80-mm. mountain gun, which fires the same projectiles as the horse-battery gun of the same caliber.

(c) STRENGTH.—WAR FOOTING.

On a war footing the field battery consists of 6 pieces, 9 caissons, 1 forge, 1 battery wagon, 1 forage wagon; total, 18 vehicles, besides 3 or 4 provision wagons. These are divided into 9 sections, each commanded by a sergeant, assisted by a corporal.

The first 6 sections each consist of a piece and its caisson; the 7th, of 3 caissons; the 8th, of the forge and battery wagon; the 9th, of the forage and provision wagons. Strength, 4 officers, 190 men, and 156 horses, not counting the officers' horses.

The matériel of the horse batteries is the same as that of the field batteries, except that one of the caissons contains small-arms ammunition (this applies to the batteries attached to the cavalry divisions only).

One of the 3 horse batteries attached to an independent cavalry division has in addition a species of battery wagon loaded with "cavalry torpedoes," or high explosive cartridges. Strength of a horse battery, 4 officers, 185 men, and 212 horses.

The mountain batteries differ in constitution according to their destination (service at home or service in Africa). The mountain battery for service in France consists of 6 mountain guns, 8 carriages with wheels and shafts (2 of these are spare carriages), 125 chests of all kinds, 3 battery wagons and 3 vans for equipage, etc. All this matériel, except the 6 vehicles, may be carried on mule back, but it would necessitate an increase in the number of pack animals.

The chests and matériel that can not be packed on the mules are carried in the bodies of the battery wagons, the limbers of which carry chests filled with ammunition.

The battery is subdivided into 8 sections (*pelotons de pièce*), each commanded by a sergeant, assisted by 1 or 2 corporals.

Each of the first 6 pieces comprises the personnel and matériel of one of the guns of the battery, and on an average 8 chests of ammunition, and a few spare parts. The 7th section consists of the battery wagons; the 8th section, of the vans and the pack mules carrying the provisions and baggage.

These 8 sections are organized into 4 platoons (sections), the first three of which are commanded by lieutenants or second lieutenants, the 4th platoon being commanded by the battery adjutant (noncommissioned officer).

The mountain batteries for African service consist of 7 mountain guns (including 1 spare gun), 9 carriages with wheels and shafts (including 3 spare gun carriages), some spare wheels and shafts, and 188 chests of various kinds, not counting the medical and veterinary can-tees. All this material is carried on mule back.

This battery is subdivided into 9 sections, the first 7 of which are commanded by sergeants assisted by 1 or 2 corporals in each. The 8th and 9th sections are commanded by corporals.

The first 6 sections form the fighting battery, and are organized into 3 platoons, each commanded by a lieutenant or second lieutenant. The 4th platoon comprises the last 3 sections, and is commanded by the adjutant.

The strength of the mountain battery for home service is as follows: 4 officers, 195 men, 34 horses (excluding the officers' horses), and 66 mules. Strength of the African mountain battery: 4 combatant officers, 1 veterinary surgeon, 1 auxiliary physician, 238 men, 17 horses, and 140 mules.

3.—*The Mountain Batteries.* (See Field Artillery.)4.—*The Companies of Artillery Workmen.*

(a) GENERAL.

The companies of artillery workmen are recruited principally from artisans and mechanics. They are intended for duty in the arsenals or "ateliers" of construction, of which there are 6, and in the artillery directions. On mobilization, these companies also furnish detachments for army corps artillery parks and for the grand artillery park for an army composed of two or more corps. They are intended for duty in the "ateliers" of repairs belonging to the artillery parks.

(b) STRENGTH.—PEACE FOOTING.

The strength of the normal company amounts to 4 officers (1 captain commandant, 1 second captain, and 2 lieutenants), 33 men of the cadre, and 150 privates; total, 183 men. The number of privates may be raised to 300, in which case an additional lieutenant is allowed for each company, and an increase is made in the number of noncommissioned officers. The total budgetary strength of these 10 companies in 1895 was 50 officers and 3,620 men, which would indicate that all the companies had been raised to the highest limit.

(c) STRENGTH.—WAR FOOTING.

On mobilization most, if not all, of the companies would be broken up; detachments would remain at home with the different directions and arsenals of construction, while other detachments would be assigned to the artillery parks. Strength of a detachment assigned to a corps artillery park: 1 officer and 100 men.

5.—*The Companies of Artillery "Artificiers."*

(a) GENERAL.

The "artificiers" are men employed in the manufacture of pyrotechnics, using the word in its widest sense, to include gunpowder itself, fuses, primers, detonators, signal rockets and bombs, incendiary compositions, torpedoes and cartridges for demolitions, and various other kinds of fireworks, either for illumination or simply for amusement. The 3 companies of "artificiers" or laboratory men, are stationed, one at the school of pyrotechny, one at the Bouchet powder works, and one with the committee at Versailles, which is charged with the reception of powders and explosives. On mobilization these companies furnish detachments for duty with the artillery parks attached to army corps and armies.

(b) STRENGTH.—PEACE FOOTING.

The company consists of 4 officers (1 captain commandant, 1 second captain, and 2 lieutenants) and 101 men.

(c) STRENGTH.—WAR FOOTING.

The strength of the section attached to an army corps park is 1 noncommissioned officer, 1 master workman, and 13 men.

XII.—THE ENGINEER STAFF.

The duties of the engineer staff (*état-major particulier du génie*) include—

(a) *With armies.*—The engineer staff service at the headquarters of armies, army corps, and divisions, and the general direction of the services of the arm. Among these duties

are works connected with the attack and defense of places, and reconnoissances connected therewith; the direction of works of temporary fortification; the construction of communications and bridges of all kinds, including pontoon bridges, and the repair and destruction of the same.

(b) *At home and in time of peace.*—The construction, maintenance, and repair of military buildings, except those belonging to the artillery establishments and those of the powder and saltpeter service; operating and carrying on the various establishments, services, and schools of the arm. Among these functions are the service of the construction, repair, and maintenance of fortified places; preparation and execution of the works connected with the defense of fortresses (in conjunction with the artillery staff), and the supervision and preservation of the public domain.

The personnel of the engineer staff consists of (1) the engineer staff proper (officers only); (2) the engineer assistants (adjoints du génie), military employees; (3) the engineer storekeepers (ouvriers d'état), military employees, and (4) the engineer gate keepers, including the water-gate keepers (portiers-consignes and bateliers-aides-portiers), military employees.

The student second lieutenants of the school of application of artillery and engineers are reckoned in the engineer staff. Their number depends upon the necessities of the service.

There is also a personnel of civil employees, such as the barrack keepers (caserniers) and the janitors of engineer-headquarter buildings. These call for no special mention.

1.—The Engineer Staff Proper.

The law of the 29th of June, 1894, reorganizing the artillery and engineers, changed considerably the constitution of the engineer staff. The grades and numbers in each grade established by the table annexed to that act are as follows: 30 colonels, 30 lieutenant colonels, 119 majors, 241 captains 1st and 2d class; total, 460, a diminution of 26 from the number authorized by the law of the 13th of March, 1875.

The engineer commands.—In the army corps regions which have several engineer directions, a general of brigade is assigned as superior commander of the engineers. These commanding generals of engineers do not, however, belong to the engineer staff, although they are taken from officers who have been promoted from that arm. They belong to the general staff of the army (état-major général), but they have their own special staffs, made up of engineer officers. These staffs are composed as follows: (a) Of officers of the arm, with or without the staff brevet, and belonging either to the special engineer staff or else detached from their troop units; (b) of orderly officers, brevetted, and placed "hors cadre," or if these are lacking, of officers not brevetted and belonging either to the engineer staff or detached from their troop units; and (c) of engineer assistants. Many of these staffs consist of a single orderly officer.

These engineer staffs are subdivided into an active section and a territorial section. On mobilization, the first section goes with the troops and the second remains within its own region.

The engineer directions.—The engineer directions and subdirections are regional or local services for the most part administrative in character. They are distributed over the whole territory of France, Algeria, and Tunis. Within their province come constructions, such as fortifications and military buildings, and they also discharge most of the functions which fall to the officers of the engineer staff. The personnel of these directions and subdirections, in fact, comprises the great majority of the officers of this special staff.

At the head of each direction is a field officer of engineer staff called the engineer director, who is appointed by the minister of war. In the army corps regions which have only one engineer direction, its head is the director of engineers for the whole region. Within the province of the engineer director are the preparation and execution of all engineer work within the direction, the responsibility and accountability for engineer matériel, and the accounts and disbursements for engineer services.

There are in all 40 engineer directions, of which 4 are in Africa. The territory of a direction is subdivided into a number of subdirections (*chefferies*), each under a chief engineer (*chef du génie*). Each "*chefferie*" contains one or more fortified places, and is named from the place where the chief engineer, who is an officer of the engineer staff, has his headquarters.

The chief engineer of a subdirection is a ministerial appointment. He has charge of all parts of the engineer service, execution of engineer work, preparation of plans, management of the engineer matériel, application of the laws and regulations relating to military servitudes, to mixed works (works undertaken in conjunction with other departments), and to the public domain.

There is in each fortified place, what is called the engineer depot (*magasin du génie*). It contains all sorts of engineer matériel, both that intended for use in war and that intended for the current needs of the service. Each of these magazines is under an engineer assistant, (*adjoint du génie*), who is responsible for all the matériel in store in the depot and its branches, but the chief engineer of the subdirection is specially charged with all the details of this service. No purchases of matériel, no alterations, no repairs, no issues, can be made except on his order or with his consent.

Engineer schools.—The "*écoles du génie*" are maintained for the object of giving the necessary theoretical and practical instruction to the troops of this arm. They are specially intended to complete the instruction of the lieutenants and second lieutenants, and of the noncommissioned officers who are candidates for promotion to the rank of officer or engineer assistant.

There is one school for each engineer regiment, and separate schools for engineer battalions permanently detached from their regiments. They are located as follows: 1st regiment, Versailles and Toul; 2d regiment, Montpellier; 3d regiment, Arras; 4th regiment, Grenoble, and Besançon; 5th regiment (railway sappers), Versailles; 6th regiment, Angers; and 7th regiment, Avignon.

The directors of these schools are the colonels of the respective regiments, but in each school, a major of the engineer staff is appointed as commandant of the school, and under the immediate orders of the colonel, he has charge of the administration, the direction of the special theoretical instruction, and with the drawing up of plans, and the work in the polygon other than that under the officers commanding the battalions. The commandant of the school is assisted by a staff which is usually composed of 2 captains of engineer staff, 1 or 2 engineer assistants, 1 or 2 "*ouvriers d'état*"; and occasionally by 1 or 2 civilian professors, who are paid by the hour or by the lesson.

Other special services under the engineer staff.—*The service of military ballooning.*—This comprises (a) the central establishment at Chalais, charged with the construction and maintenance of balloons, as well as with all studies for perfecting the art of aerial navigation; (b) aerostatic parks established in the engineer schools and in various places determined by the minister—these parks are directly subordinate to the engineer authorities of the region.

The establishment of Chalais, considered as a special institution, is under the immediate authority of the minister. As regards order and discipline, it is subordinate to the general commanding the engineers of the military government of Paris.

All regulations concerning the instruction of the technical personnel and relating to the working of this service in war are drawn up in concert with the staff of the army (*état-major de l'armée*), which has the initiative in such matters.

The establishment of Chalais is under a field officer of engineer staff as director, assisted by a captain of engineer staff as subdirector, together with a force of engineer staff officers, engineer assistants, military workmen, and civil employees.

One company of each of the first 4 regiments of engineers is designated as a balloon company. The school of Chalais gives every year a course of technical instruction to a certain number of engineer officers and trains military workmen for this special service. The following are some of the courses of instruction that take place at Chalais yearly:

From the 1st to the 31st of May, for officers of the balloon companies and officers in charge of the balloon matériel in the fortified places, provided they have not undergone previous instruction;

From the 12th to the 31st of May, for a number of officers of the staff of the army (*service d'état-major*);

From the 24th to the 31st of May, for captains commanding companies of balloonists with a view to posting them on any improvements that have taken place since their last instruction.

Each company of balloonists sends annually to Chalais for instructional purposes a detachment of 8 men. They remain at the school from the 10th to the 31st of May.

A number of machinists and other artisans belonging to the companies of balloonists are annually put through a course of instruction at Chalais lasting from 3 to 6 months.

The service of military telegraphy.—This service was assigned to the engineers by the decree of the 29th of April, 1890, and was organized by a ministerial order of the 5th of May following. This service comprises, first, military telegraphy, both electrical and optical (including field and fortress telegraphy), the permanent military telegraph lines, and the schools of light telegraphy; second, the military homing pigeon service.

The service of military telegraphy in time of war is independent to a very great extent of the engineers and requires a brief mention:

In time of war the military telegraph service comprises (a) a service of the first line or with the field army, (b) a service of the second line or with the lines of communications, and (c) a service of the third line or territorial service.

The personnel of the services of the first and second lines is recruited from the employees of the civil telegraph administration who are liable to active service.

All the agents necessary on mobilization for the working of the first and second lines are designated in advance, and are already organized into sections in time of peace.*

The service of the third line remains under the civil telegraph administration.

First.—The direction of military telegraphy and the secondary establishments: The military telegraph service properly speaking comprises, from an administrative point of view, (a) the direction of military telegraphy in Paris, (b) the central depot of military telegraphy, also at Paris, and (c) other secondary establishments installed in places fixed by the minister, according to the needs of the service.

(a) The direction of military telegraphy is placed, in its character of a special service, directly under the war ministry. As regards order and discipline, it is subordinate to the

* These agents are divided into functionaries and subagents, the former being treated as officers and the latter as enlisted men. The highest ranking functionary has the grade and title of telegraph director, being treated as a lieutenant colonel. These functionaries, however, have not the legal status of officers. The telegraph director is under the orders of the chief of staff.

general commanding the engineers of the government of Paris. At its head is a director, a field officer of engineer staff, assisted by a personnel of officers of engineers and engineer assistants. This direction is intrusted with the creation and maintenance of all telegraph matériel, and with all studies connected with this question; also with the instruction of the personnel, and the organization and working of the units of the field telegraph service. Experiments regarding homing pigeons, and the training of pigeon keepers, also come under this direction.

(b) The central depot of military telegraphy is subordinate to the direction of military telegraphy. This institution has at its head a major of engineer staff, as chief of depot, assisted by a personnel composed of captains of the arm and engineer assistants, besides such employees and workmen as are necessary for the repair and maintenance of the matériel.

This depot buys, manufactures, and has manufactured all the telegraph matériel, electrical or optical, necessary for the military telegraph service, and carries on all experiments and investigations for the improvement of this matériel.

The central depot has the direction of the temporary school of optical telegraphy at Mont Valérien. This school receives every year, from the 1st of May to the 1st of June, a certain number of noncommissioned officers and sappers of the engineer regiments to be trained as instructors of the sappers assigned to telegraph duty (sapeurs-télégraphistes). In addition, every year, a certain number of engineer officers are sent to this school, to take a three-weeks' course in military telegraphy and electricity.

(c) Secondary establishments: These comprise regional depots, regimental depots, the depot for optical telegraphy for Algeria and Tunis, and the permanent military telegraph lines.*

The permanent military lines and systems: These comprise the systems of the "commands" of fortified places (electrical) the optical systems, and the special systems.

The systems of the commands of fortified places are operated by a military personnel, drawn from the soldiers stationed at the different forts of the command. These systems are, in fact, in the hands of the artillery.

In time of war, these lines are, in general, operated by the mobilized detachments of the postal and telegraph administration.

The systems of optical telegraphy, like those connecting the different fortresses on the frontiers, are, both in peace and war, in the hands of detachments of sapper-telegraphists. These detachments are under the orders of the chief engineers of the respective subdivisions. In each "chefferie" an engineer staff officer is charged with the supervision of this service, and with making the necessary reports and returns as to the working of the service.

The lines or systems strictly confined to one particular service or administration (special systems) are constructed and operated by the particular service concerned (the intendance, for instance).

Second.—The military homing pigeon service: By virtue of the decree of the 29th of April, 1890, this branch was attached to the service of military telegraphy.

* The signal and telegraph duties of the line are independent of the engineer staff, or nearly so. The men of the cavalry regiments trained in light telegraphy (6 per regiment) are instructed in the temporary regional schools of light telegraphy, and at the cavalry school of application at Saumur. The signalers of the battalions of infantry, of whom there were formerly 8 per battalion, are trained in their own battalion under specially instructed noncommissioned officers. (These infantry signalers have now been discontinued, except in the 14th and 15th corps regions and in the division of the Vosges.)

The regulations and instructions concerning the organization and working of the military pigeon cotes, as well as the utilization of their resources for military purposes, are drawn up by the engineer service in concert with the staff of the army, which has the initiative in such matters.

The military pigeon cotes include the Paris pigeon cotes, where all studies and experiments are made relating to the use of homing pigeons and the instruction of the trainers and keepers; pigeon cotes installed in places designated by the minister (more than 40 garrisons in France have pigeon cotes, and communicate with each other by this means).

Each military pigeon cote is placed under the direction of the chief engineer of the place, who has under his orders an engineer officer or engineer assistant, and some keepers (sappers of engineers) chosen from men who have already been in the business of breeding these pigeons.

There are also mixed pigeon cotes at the great naval stations, where a certain number of pigeons are kept for the navy. These establishments are also under the engineer staff, but their expenses are shared by the navy.

2.—The Engineer Assistants (Adjointe du Génie)

The officers of engineers have under their orders, to assist them in the discharge of their duties, a class of military employees called engineer assistants, who are military employees, recruited from the engineer storekeepers under the age of 40, and from the noncommissioned officers of the engineer troops. Appointments depend upon the results of competitions, to which only the above classes of men are admitted.

The engineer assistants rank as officers. They are appointed by presidential decree, and they enjoy the benefits of the law on the status of officers. However, the grades of their hierarchy are not assimilated in any way to those of military officers. The grades and numbers of these employees are as follows: Principal engineer assistants, 1st class, 20; principal engineer assistants, 2d class, 100; engineer assistants, 1st class, 100; engineer assistants, 2d class, 150; engineer assistants, 3d class, 200; total, 570.

Engineer assistants are generally placed in charge of engineer matériel and often act as disbursing officers, where the amounts are not large. In time of war they are attached to the engineer staffs and parks, and are then mounted.

The minor functions of engineer assistants may be intrusted to a certain number of noncommissioned officers, appointed by the minister of war, and selected from the men who are on the promotion list for the grade of engineer assistant, third class. These men are placed "hors cadre" and are attached to the engineer staff. They bear the title of noncommissioned probationers (*sous-officiers stagiaires*). They are given the grade of adjutant noncommissioned officer. In time of war they are assigned to the engineer regiments and discharge the functions of company adjutants.

3.—The Engineer Storekeepers (Ouvriers d'État).

The engineer storekeepers are military employees of the grade of noncommissioned officer. They are assigned to the engineer schools to take charge of the engineer matériel on hand there. Their number is at present fixed at 6. They are appointed by the minister of war, and are recruited from the noncommissioned officers of the arm having not less than 6 years' service. They have the rank of adjutant noncommissioned officer.

4.—*The Engineer Gate Keepers, etc. (Portiers-Consignes and Bateliers-Aides-Portiers).*

The engineer gate keepers are military employees of the grade of noncommissioned officer, having charge of the gates of the enceintes of fortified places and of the other parts of fortifications. They also have charge of the military domain. The water-gate keepers have charge of operating the water gates and sluice gates of fortifications. Gate keepers are graded as 1st, 2d, and 3d class, and their total number is 292, counting 2 water-gate keepers. They are warranted by the minister, and are selected from noncommissioned officers of at least 10 years' service.

XIII.—THE ENGINEER TROOPS.

(a) GENERAL.

The engineer troops consist of 6 regiments of sappers and miners so-called (*sapeurs-mineurs*) and 1 regiment of railway sappers (*sapeurs de chemins de fer*). All these regiments consist of a staff and noncommissioned staff, a section "*hors rang*," and generally 3 battalions, each of 4 companies. One regiment, the 7th, has 4 battalions. Each regiment has also a company of sapper drivers (*sapeurs-conducteurs*), which does not belong to any of its battalions. One company of each of the first 4 regiments is designated as a company of balloonists.

Exclusive of the railway regiment there are 19 battalions in the six regiments, giving one battalion for each army corps in time of war.

Since the abolition of the artillery pontonier regiments in 1894 pontoon duties have been transferred to the engineer troops.

Officers of the regiments of sappers are liable to transfer to the engineer staff, and engineer staff officers are also liable to transfer to the engineer troops, according as the minister of war may see fit. Neither of these services, therefore, is a closed corps.

(b) STRENGTH —PEACE FOOTING.

Company of sappers and miners, 4 officers (1 first captain, 1 second captain, 2 lieutenants) and 108 men.

Company of sapper drivers, 4 officers and 101 men.

(c) STRENGTH.—WAR FOOTING.

On mobilization the battalions are broken up. Each battalion furnishes one company to the army corps, which is to be of increased strength, having charge of the corps bridge equipage, and one company is attached to each division. The remaining companies are broken up to form various detachments (balloon detachments, etc.).

Cadre of a divisional company, 4 officers (1 captain commandant and 3 other officers) and 43 noncommissioned officers and men. Number of privates, about 200.

Cadre of a corps company, 4 officers and 42 men. The engineer park and bridge equipage attached to this company have their own cadres, a captain being chief of park and bridge train. He is assisted by detachments of sappers and miners for the park and bridge train. One company and one detachment of sapper drivers furnish horses and teams.

Cadre of a company of railway sappers, 5 officers (1 captain and 4 other officers) and 42 noncommissioned officers and men, also about 170 privates.

Cadre of a section of balloonists, 1 captain, 2 other officers, and 13 noncommissioned officers. Number of sapper balloonists, 65 (privates).

XIV.—THE RAILWAY TROOPS.

(a) GENERAL.

The railway troops belong to the engineers and form 1 regiment of 3 battalions of 4 companies each and 1 company of sapper drivers. In time of war they are directly subordinate, first, to the commanders in chief of armies, and, second, to the field railway committee. They may also serve under the directors of lines of communications.

(b) STRENGTH.—PEACE FOOTING.

Regiment, 65 officers and 2,059 men.

Company of railway sappers, 4 officers and 160 men.

Company of sapper drivers, see "Engineer troops."

(c) STRENGTH.—WAR FOOTING.

See "Engineer troops" for the strengths of such units as are known.

XV.—THE TRAIN TROOPS.

(a) GENERAL.

The train troops (train des équipages militaires) comprise 20 squadrons, each consisting of a staff and noncommissioned staff and 3 companies. All of these squadrons are stationed in France, and the first 18 are assigned to army corps, whose numbers they bear. The 19th and 20th squadrons are at Paris and Versailles, and belong to the military government of Paris. There are also 16 mixed companies in Algeria and Tunis, so called because they have charge both of the service of transportation proper and of the ambulance service. They are attached, for administrative purposes, to the squadrons at home.

The object of the train troops is to furnish teams for the vehicles and drivers for the vehicles and pack animals belonging to the ambulances and field hospitals; transportation for subsistence, clothing, camp equipage, the field money chests and field post office; transportation for the field telegraphic service; transportation for the engineer parks and the head-quarter trains, and for the lines of communication and the field railway services (when not supplied by troops of other arms); and finally, the administration and command of the mobile remount depots are intrusted to officers of the train.

In each army corps the train squadron is under the command of the artillery brigadier. In Algeria the superior command of the train troops is also confided to the general commanding the artillery.

(b) STRENGTH.—PEACE FOOTING.

The squadron consists of 18 officers and 275 men.

The company, of 4 officers and 87 men.

The mixed company, of 4 officers and 300 men.

(c) STRENGTH.—WAR FOOTING.

On mobilization each company forms two, or doubles itself. The 6 companies of an army corps have very different strengths in officers and men, according to the services they are performing. These 6 companies are split up into 19 detachments of varying strengths.

XVI.—THE MEDICAL AND SANITARY SERVICES.

The object of the medical and sanitary services is to apply the rules of hygiene to the health of the troops and to the treatment of sick and wounded persons of the military service. It furnishes also the necessary matériel and supplies for the hospitals and ambulances.

These duties are discharged by a personnel consisting of (1) military physicians and apothecaries (*corps de santé militaire*), (2) the officers of the hospital administration, and (3) the sections of hospital orderlies (*infirmiers militaires*).

1.—*The Military Sanitary Corps (Corps de Santé Militaire).*

This corps consists of physicians and apothecaries. It has a hierarchy of its own, the grades of which are assimilated to those of combatant officers. Officers of this corps enjoy the benefits of the law on the status of officers. The grades and numbers in each grade are as follows:

GRADE.	ASSIMILATION.	CADRE.	
		Physicians.	Apothecaries.
Aide-major, 2d class	Second lieutenant	100	15
Aide-major, 1st class	Lieutenant	300	48
Major, 2d class	Captain	480	68
Major, 1st class	Major	320	46
Principal, 2d class	Lieutenant colonel	45	6
Principal, 1st class	Colonel	45	6
Inspector	Brigadier general	9	1
Inspector general	Major general	1	—
Total	—	1,800	185

A number considerably less than that fixed by the law is, however, appropriated for in the yearly budget. Thus the budget for 1895 provided for 1,270 physicians and 142 apothecaries, the vacancies being very largely in the higher grades.

To the titles given in the above table, the word “*médecin*” (physician) or “*pharmacien*” (apothecary) must be prefixed to get the full designation.

Thus, a surgeon of the lowest grade is called “*médecin-aide-major de 2e classe*” (assistant surgeon major, 2d class). The apothecary officer of the highest grade is called “*pharmacien-inspecteur*” (apothecary inspector).

Sanitary directions.—The general direction of the sanitary service is intrusted in the war ministry to a central direction presided over by a medical officer of high rank,* in the military governments and in the army corps to medical directors (*directeurs du service de santé*), under the authority of the governor or the general commanding the corps, and in the groups of fortified places to the surgeons in chief, under the authority of the superior commander of the defense.

Medical service with the troops.—As a general rule, surgeons and apothecaries are designated by name for duty with (such) a troop unit or with (such) an establishment. In each troop unit, such as a regiment or an independent battalion, there is a surgeon-major of

*The present head of the “*Direction de Service de Santé*” at the war ministry is a medical inspector. The medical inspector general is at the head of the technical sanitary committee.

the 1st or 2d class, who is chief medical officer. He is aided by the junior medical officers, who are under his orders, and by the enlisted personnel, which will be described later.

Medical service in the hospitals, etc.—The hospitals, which are either purely military or mixed (that is, civil hospitals having military wards), or else civil hospitals pure and simple, are under the supervision and control, to a greater or less extent, of medical officers specially assigned to them. The medical officer of a regiment or battalion is concerned only with technical medical duty, while the medical officer in charge of a hospital is practically its commanding officer, having control of the personnel as regards police and military discipline.

Medical establishments.—Medical establishments are intended either for the reception and treatment of the sick and wounded, or for the reception and keeping of medical stores. The establishments under the regimental medical service are regimental infirmaries, infirm-ary hospitals, and convalescent depots.

The regimental infirmaries are established for the treatment of soldiers whose condition is not sufficiently grave to require them to be sent to a hospital. They may also take in convalescents discharged from the hospitals, until they are fit for duty again.

The infirmaries are not necessarily installed in special buildings. A separate wing of a building will answer, provided it furnishes the room necessary. The accommodations and number of beds are usually quite limited.

The personnel under the chief medical officer consists of the junior medical officers of the unit, and a force of noncommissioned officers and men called regimental hospital orderlies (infirmiers régimentaires), who are taken from the men of the unit.

The training of the regimental litter bearers (brancardiers) is under the chief medical officer of the unit, who is assisted in this service by the regimental hospital orderlies.

Infirm-ary hospitals are established in garrisons where there are no hospital facilities, or which are situated at too great a distance from the military hospital or other hospital taking military patients. They are a sort of combination of infirm-ary and hospital, taking cases that would ordinarily be treated in an infirm-ary, and others such as require treatment in a hospital.

The infirm-ary hospital is under the chief medical officer of the unit, who is assisted by his junior officers and by regimental hospital orderlies. If these are insufficient, detachments of the regular hospital orderlies may be furnished for duty as nurses and for carrying on the ordinary work of the hospital. The infirm-ary hospital must always be installed in a building entirely separate from the men's barracks.

Convalescent depots are established, in such numbers and such places as are fixed by the minister, in order to receive men discharged from hospitals, who are unfit for active duty. These depots retain the convalescents until they are ready for active duty with their units.

The minister attaches to a convalescent depot a sufficient number of officers, surgeons, noncommissioned officers, and men. The officer highest in rank has the command of the depot. The senior medical officer bears the same relation to the commandant of the depot that a regimental chief medical officer does to the regimental commander, while the senior medical officer of the depot has the same authority over the hospital orderlies and convalescents that he would have in a regimental infirm-ary.

Medical establishments not connected with the troop units.—These are hospitals and medical depots. The different classes of hospitals have already been mentioned.

Military hospitals.—These are not very numerous (except in Africa) and are distributed very unequally throughout the army-corps districts. Some army corps have none at all. Others, like the 14th corps and the military government of Paris, have 4 or 5. The 19th corps has over 50. These hospitals are graded into 1st, 2d, 3d, 4th, and 5th classes. The Val de Grâce Hospital, in the military government of Paris, being an exceptionally large establishment, and the seat of the medical school of application, is in a class of its own.

The personnel of a military hospital comprises a surgeon in chief, with a number of assistants, one or more apothecaries, one or more officers of the hospital administration, a detachment of hospital orderlies (infirmiers), the strength of which depends on the class of the hospital, and in some of the hospitals, a number of nursing sisters.

Mixed hospitals.—These are civil hospitals, which by an agreement with the minister of war, have set aside one or more separate wards for the treatment of soldiers. The military wards in such hospitals are under military surgeons, who may or may not be assisted by military infirmiers, according to the terms of the convention entered into with the hospital.

Civil hospitals.—In these hospitals, military patients are subject to the rules and discipline of the establishment, and are treated by the surgeons belonging to the establishment. The surgeon in chief of the garrison, if there is one, has the right to visit the sick in these hospitals, but not to meddle in any way in their treatment or with the workings of the hospital.

Medical depots.—These establishments are under the medical director of the region in which they are situated. They comprise issuing pharmacies, hospital stores, and regional pharmacies. The latter are confined to those regions in which there is no military hospital. The personnel of these establishments is fixed by the minister. It consists usually of apothecaries and officers of the hospital administration, or both. There is also a civil personnel employed in these establishments, consisting of clerks, workmen of various classes, and charwomen. These civilian employees are employed, promoted, and discharged in accordance with rules laid down by the minister.

2.—*The Officers of the Hospital Administration.*

The officers of the hospital administration form a distinct corps. They are employed in the paper work of hospitals, etc., have charge of the details of administration, of the accounts, and the supervision of the police and discipline of the establishment, under the chief medical officer. They command and officer the sections of hospital orderlies and the detachments that are on duty in the various hospitals.

They enjoy the benefits of the law on the status of officers, but the grades of their hierarchy are assimilated in no way to those of combatant officers. They are distinct from the officers of administration of the intendance, but have exactly the same status. The cadre of these officers comprises the following grades and numbers: Officers of administration—Assistants, 2d class, 112; assistants, 1st class, 112; 2d class, 56; 1st class, 56; principal, 14; total, 350.

3.—*The Sections of Hospital Orderlies (Infirmiers).*

These are organized into 25 sections, under the command of officers of the hospital administration. One section is assigned to each corps region at home, and bears the number of that corps. The 19th, 20th, and 21st sections are serving with the 19th corps in Algiers.

The 22d, 23d, and 24th sections are in the military government of Paris, and the 25th section is attached to the military government of Lyons. These sections are not of uniform strength. The effectives and cadre of each are fixed by the minister in accordance with the necessities of each army corps.

The infirmiers are divided into three classes—"Infirmiers commis aux écritures" (writers); "infirmiers de visite" (nurses and dispensary men), and "infirmiers d'exploitation" (the working force employed in the other services in the hospital, such as kitchen, baths, hospital stores, etc.).

The entire strength of the 25 sections of infirmiers in the budget for 1895 was 5,407 noncommissioned officers and men.

XVII.—THE VETERINARY SERVICE.

Under this service come: The hygiene of the animals employed in the military service, the treatment of their diseases and all questions of shoeing, the examination of all animals intended to be slaughtered for food for the army, and the inspection of meats.

The duties of this service are performed by a corps of military veterinarians having a special hierarchy, the grades of which are assimilated to those of combatant officers. The grades, and numbers in each grade, are as follows:

Grade.	Assimilation.	Number.
Principal veterinarian, 1st class...	Lieutenant-colonel	5
Principal veterinarian, 2d class...	Major.....	5
Veterinarians, 1st class.....	Captain.....	148
Veterinarians, 2d class.....	Lieutenant.....	151
Assistant veterinarians.....	Second lieutenant.....	115
Total	419

There is no veterinary direction in the war ministry. Matters of this nature are centralized in the 2d or remount bureau of the cavalry direction.

The territory of France and Algeria is divided into 10 veterinary "ressorts" or departments, at the head of each of which is a veterinary officer of high rank. There is also a veterinary officer as veterinary director of each army corps. Other veterinary officers are attached to the schools, the remount depots, and to the mounted troop units, in accordance with the numbers fixed by the laws, decrees, and budget.

XVIII.—THE INTENDANCE SERVICE.

This service comprises: (1) The services of pay, military subsistence, clothing, camp equipment, travel and transportation, military bedding, and the approval of all disbursements connected with these services; (2) the approval of the outlays made by the troop units and establishments, the verification of issues in cash and matériel made from the military chests or from the magazines of these units or establishments; (3) the approval and the verification of the disbursements of the recruiting service and of the service of military justice, and (4) finally, the administration of such personnels as are not attached to troop units, and of all detached persons who draw pay, salary, or gratifications.

This service is directed by a special corps, the military intendants corps, the grades of which are assimilated to those of the military hierarchy. The grades of this corps and the numbers in each grade are as follows:

Grade.	Assimilation.	Number.
Intendant general	Major general	7
Military intendant	Brigadier general	30
Military subintendant, 1st class	Colonel	90
Military subintendant, 2d class	Lieutenant colonel	100
Military subintendant, 3d class	Major	110
Assistant in the military intendants	Captain	50
Total		387

The numbers appropriated for in the budget are considerably less than those given in this table.

This corps is recruited by competition among the captains of all arms, and the officers of administration. Its officers are assisted in the performance of their duties by (a) the officers of administration and (b) the sections of clerks and workmen of administration.

There is a direction of administrative services at the war ministry, presided over by an intendant officer of high rank.* There is also a director of the intendants service at the headquarters of each army corps, and a subintendant at the headquarters of each division.

The different troop units are administered by their councils of administration, as regards pay, subsistence, clothing, etc. In each unit there is a treasurer and a clothing officer, permanently detailed from the officers of the unit; while the distribution of the articles of subsistence, received from the magazines of the state, is made by a distributing officer, detailed for that purpose. To illustrate, the workings of the pay system will be given:

Separate pay rolls for officers and men are drawn up by the treasurer. These rolls are examined and certified by the council of administration. The pay rolls are then sent to the divisional subintendant, who examines them, verifies them, and draws a warrant on the agent of the treasury (treasurer paymaster general) for the amount of the rolls. The rolls are then returned to the council of administration, which signs them again by way of receipting for the funds, delivers them to the treasurer, who draws the amount from the financial agent of the treasury, turning over to this officer the rolls. The sums drawn are entered in the pay book, and the treasurer turns in the money received to the military chest of the unit, in the presence of the president and major of the council, entering the sum paid into the chest in the cash book of the unit.

(a) *The officers of administration.*—The personnel of the officers of the administration of the intendants service forms a distinct corps, divided into three sections, as follows: Officers of administration of the intendants bureaus, officers of the subsistence administration, and officers of the administration of clothing and camp equipage. These officers have a hierarchy of their own, without any assimilation in grade with the officers of other corps of the army. The officers of any one of the three sections may be employed in any other section, as the minister may see fit.

*The senior intendant general is not at the head of this direction. He is serving as president of the technical committee of intendants.

The numbers and grades of the officers of this corps are as follows:

GRADES.	CADRES.		
	Intendance Bureau.	Subsistence.	Clothing and camp equipage.
Principal officer of administration.....	22	22	5
Officer of administration, 1st class.....	88	88	18
Officer of administration, 2d class.....	88	88	18
Assistant officer of administration, 1st class....	176	176	87
Assistant officer of administration, 2d class....	176	176	87

The employment of these officers is indicated by the sections to which they belong. Those belonging to the subsistence sections are mostly on duty in the subsistence magazines, of which there is at least one in every corps region. Separate magazines for forage are also maintained in many of the regions.

The magazines of clothing and camp equipage are distributed in a way somewhat similar to the magazines of subsistence. There is at least one regional magazine for every corps, generally with one or more branches. The duties in these magazines are performed by officers of administration of the 3d section.

Officers of administration are also assigned to command the sections of clerks and workmen of the administration.

(b) *Sections of clerks and workmen of the administration.*—These sections are organized to carry on the clerical and other labor of the different administrative services. There are 25 of these sections, 1 to each of the 18 army corps stationed at home, and bearing its own corps number. The 19th, 20th, and 21st sections are in Algeria; the 22d and 24th in the military government of Paris; the 23d is with the 6th army corps, in addition to the 6th section; and the 25th is attached to the military government of Lyons.

Each section is divided into three subsections, composed of clerks, workmen in the subsistence service, and workmen in the clothing and camp equipage service respectively. The effectives and cadres of the different sections are fixed by the minister, and vary considerably in the different regions.

The total strength of these sections, as borne on the budget for 1895, was 8,720 noncommissioned officers and men.

XIX.—SPECIAL CORPS.

1. *The squadrons of volunteer scouts.*—The law of 1875 provides for 19 of these squadrons, but they have not yet been organized.

2. *The gendarmerie or military police.*—As regards organization, promotion, and discipline, this corps is under the minister of war. For various other purposes it is subject to the minister of the interior, the minister of justice, and the minister of marine.

The gendarmerie is composed of the departmental gendarmerie, comprising 27 legions; the republican guard of the city of Paris, comprising 4 mounted squadrons and 3 battalions of 4 companies each; and the colonial gendarmerie, composed of 4 companies, and placed at the disposal of the minister of marine, and paid for out of the naval budget.

The total peace strength of the gendarmerie, including the republican guard, and excluding the colonial gendarmerie, amounted, according to the last budget, to 25,920 officers and men.

3. *The Paris firemen (sapeurs-pompiers de la ville de Paris).*—The firemen of Paris constitute an infantry regiment of 2 battalions, of 6 companies each. This regiment, which is recruited by voluntary enlistment or by levies made on the various dismounted units, is maintained by the city of Paris, although it figures on the army list.

4. *The customs and forestry employees.*—The units formed from these sources are borne on the army list as part of the territorial army.

The employees of the customs are already organized in peace into the active units of the customs, and the fortress units. The *first* consist of 31 battalions and a few independent companies. The battalions are of various strengths, having from 2 to 5 companies. The *second* consists of 6 battalions, and a number of companies and sections, stationed in the vicinity of the principal fortresses. They do not figure in the military budget, and their strength is a matter of conjecture only.

The employees of the forestry administration are organized as the “chasseurs-forestiers” (forestry rifles). Their units are companies, sections, or detachments, according to the effectives in each case. Their strength can not be estimated with any accuracy.

XX.—TOTAL STRENGTH.—PEACE FOOTING.

Officers, assimilated officers, and men of all arms and branches, amounted to (July 1, 1895)	598,024
Deduct gendarmerie and republican guard	25,920
Total for active army	572,104
Making all deductions for men absent with leave or otherwise, sick, etc., the total effectives for the year 1895 amount to	550,429
Deduct effectives of gendarmerie and republican guard	25,661
Total net effectives, active army	524,768

XXI.—TOTAL STRENGTH.—WAR FOOTING.

Active army and reserve (18 classes)	2,000,000
Territorial army (6 classes)	490,000
Reserve territorial army (6 classes)	440,000
Total	2,930,000

XXII.—PROSPECTIVE STRENGTH.

Taking an annual contingent of recruits of 230,000, and a time of service of 25 years, and allowing for a yearly loss of approximately 4 per cent, it will be found that when the law of 1889 has had its full effect, the following figures will result:

Active army and its reserve (18 classes)	2,400,000
Territorial army (6 classes)	750,000
Reserve of territorial army (6 classes)	600,000
Total	3,750,000

The military authorities of Germany, in drafting their new army bill, figured out the ultimate war strength of the French army as about 4,050,000 men. This result was obtained by taking a yearly contingent of 230,000 men, and making yearly deductions for losses rather less than what have been assumed in the above calculation.

GERMANY.

I.—AREA AND POPULATION.

The German Empire has an area of 540,483 square kilometers, and a population of 49,428,470, or 91.5 per square kilometer.

II—AVAILABLE STRENGTH.

The registered number of young men who annually attain the age at which they are available for military service is about 437,000. There are certain exemptions, adjournments, and excuses, after conscription, on account of physical ineptitude. The contingent annually incorporated is fixed at 228,000 men, amounting to 0.46 per cent of the population, or 52 per cent of the total number of registered men. This gives a total peace establishment of 479,229 privates. In order to keep the establishment at that figure, however, it is necessary to incorporate a certain additional percentage to cover the losses during the year from natural and other causes, particularly also those resulting from the promotion of privates to the grade of noncommissioned officer. The total peace strength of the German army for the year 1894-95 was 584,548 officers, noncommissioned officers, and privates, combatants and noncombatants, made up as follows:

Combatants:	
Officers.....	22,584
Noncommissioned officers.....	68,695
Privates.....	454,416
	<hr/> 545,645
Noncombatants:	
Medical officers.....	2,069
Paymasters, music inspectors, etc.....	1,102
Veterinarians.....	578
Armors and saddlers.....	1,153
Pay sergeants.....	1,202
Musicians (noncommissioned officers).....	6,064
Hospital attendants (noncommissioned officers).....	1,922
Musicians (privates).....	15,649
Hospital attendants, artificers (privates).....	9,164
	<hr/> 88,908
Total.....	<hr/> 584,548

These figures do not include volunteers of the class called "1-year volunteers," of which there are some 9,000 each year, and from which the officers of the reserve and landwehr are recruited.

III.—MILITARY LIABILITY.

Military liability, called "wehrpflicht," begins with the completion of the 17th year and ends with the completion of the 45th year. It is divided into two classes, "dienstpflicht," or service liability, and "landsturmpflicht," or landsturm liability.

Service liability begins on the 1st of January of the year in which the young man completes his 20th year and continues until March 31 of the year in which he completes his 39th year. Service under this category is divided into service with the colors, service in the reserve, and service in the landwehr.

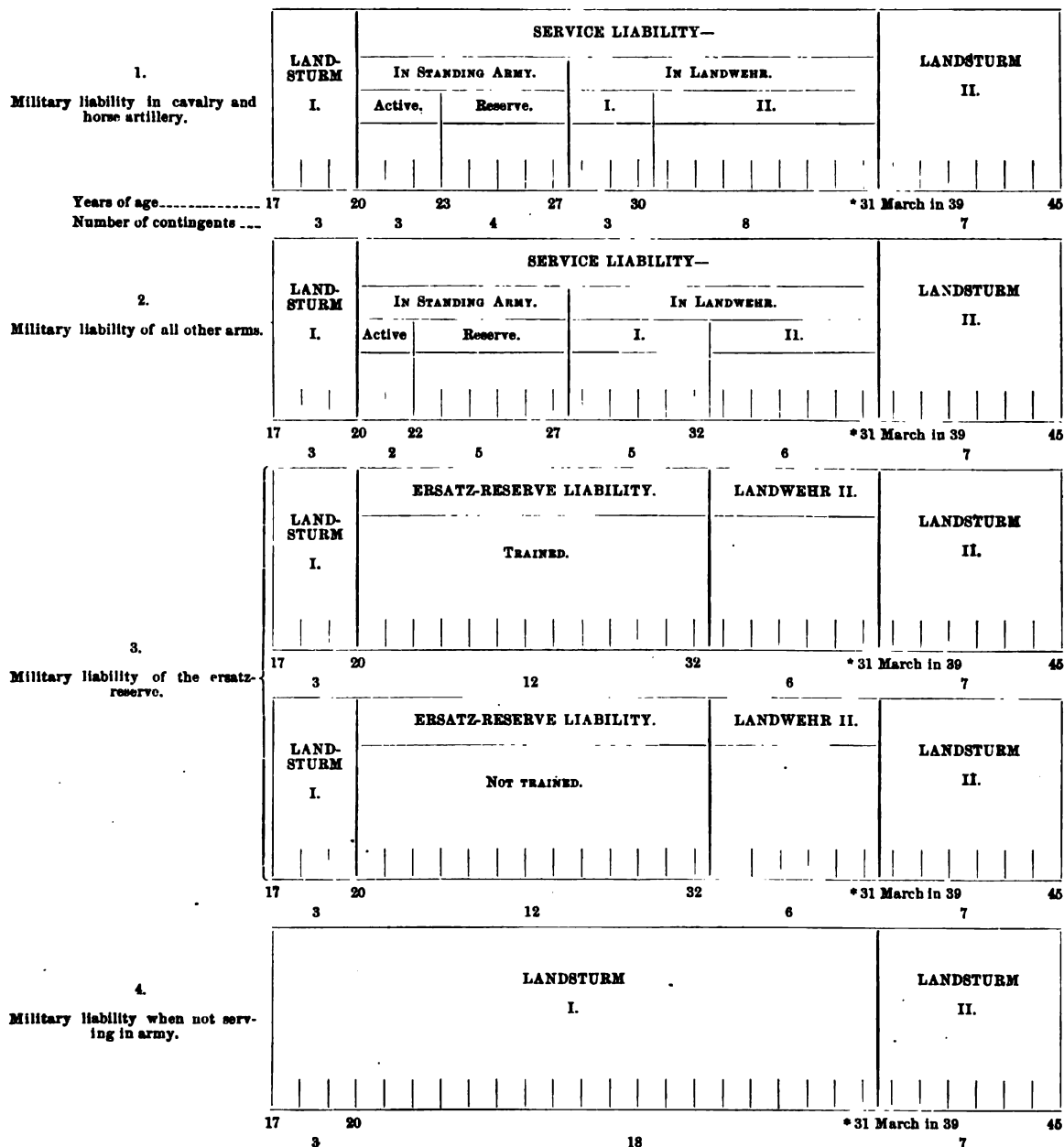
Landsturm liability begins with the completion of the 17th year and terminates with the completion of the 45th year. The landsturm is divided into 2 bans. The first ban embraces all men between the ages of 17 and 39 years of age who belong neither to the army nor navy. The second ban consists of all males between 39 and 45 years of age.

In case of war these limitations become inoperative and the men remain in the category in which the outbreak of the war finds them.

The military curriculum of the able-bodied male is as follows: At the age of 17 he is enrolled and becomes a member of the first ban of the landsturm, liable to be called out by the Emperor in defense of the country. In the year in which he completes his 20th year he presents himself for conscription and medical examination; if accepted he enters the service in the same year, remaining 2 years with the colors, except in the cavalry and horse artillery, where the term of active service is 3 years. On completion of his service with the colors he is dismissed on unlimited leave and belongs for the next 5 years (in the cavalry and horse artillery 4 years) to the reserve of the active army, which forms part of the mobilized army. While belonging to the reserve he is liable to be called out for 2 trainings of 8 weeks each. (In 1894, 137,230 men of the reserve were called out in Prussia. Adding those called out in Bavaria, Saxony, and Würtemberg the total will approximate 175,000 men.) After being thus a member of the active army for 7 years the man passes to the first ban of the landwehr, in which he remains for 5 years (in the cavalry and horse artillery 3 years), subject to 2 trainings of 1 or 2 weeks. From the first ban he passes to the second ban of the landwehr on completion of the 32d year, and remains until March 31 of the year in which he completes his 39th year, when he passes to the second ban of the landsturm. His 45th birthday terminates all his military obligations.

There is an additional category of men called the "ersatz reserve." Men assigned to this category are intended to replace the men of the reserve of the active army on mobilization. The law of November 2, 1888, states: "The ersatz reserve is intended to fill up the ranks on mobilization (making good losses that have resulted in the five contingents of the reserve from natural and other causes) and to form reserve troops. The number assigned annually to the ersatz reserve is to be such that seven contingents will satisfy the first requirements of the army on mobilization." This would seem to mean that seven contingents of the ersatz reserve are to equal five contingents of the reserve of the active army. How many men are thus assigned each year under the new law of 1893 could not be ascertained; in 1892-93 the number so assigned was 84,394. To this category are assigned all those men who, though found physically qualified, are freed from active service on account of being supernumerary (which is ascertained by drawing of lots, the number of supernumeraries for 1892-93 being 8,350), and such other men as do not come up to the full requirements, but are not wholly disqualified for service. Men of limited qualification not required for the ersatz reserve are assigned to the first ban of the landsturm—90,217 for the year 1892-93. The service in the ersatz reserve lasts 12 years, during which period a portion of the ersatz reserve receives a

limited amount of training. After 12 years in the ersatz reserve the men pass to the second ban of the landwehr, if they have undergone any training; if not, they pass to the first ban of the landwehr. On March 31 of the year in which they complete their 39th year all pass to the second ban of the landsturm. The subjoined diagrams illustrate this system of recruitment:



Of the two lines of figures between diagrams the upper one designates years of age, the lower one the number of contingents or classes.
 * On March 31 of the year in which he becomes 39 years of age the man passes to the second ban of the landsturm.

EXEMPTIONS AND ADJOURNMENTS.

Men who have been sentenced to the penitentiary are excluded from service in the army and navy.

Men physically disqualified for any service are exempted.

Adjournments may be granted on account of incomplete bodily development, and to men (a) who are the sole support of indigent families; (b) the son of a farmer, mechanic, etc., who is indispensable in his father's business; (c) the brother of a man killed in action, died of wounds, or disabled by wounds from gaining a livelihood, if such adjournment is a relief to the family; (d) men who have come in possession of an estate by inheritance, provided their livelihood depends on the estate and the preservation of the estate depends on their presence; (e) men who have inherited manufactories or other industrial establishments in the year preceding service liability, provided the preservation of the establishment is impossible without the personal attendance of such men; (f) men engaged in preparation for a certain calling, study, or art, if an interruption would be a hardship, and (g) men liable to service who reside permanently abroad.

IV.—COMMAND.

The command of the German forces is fixed by the terms of the constitution of the German Empire adopted April 16, 1871, and differs in peace and war. It is in the hands of the Emperor, the chiefs of the army inspections, and corps, division, brigade, etc., commanders.

As regards the chief command by the Emperor, the same is complete over all the forces of the empire in war alone. The constitution imposes on the Emperor the duty of representing the empire internationally, and grants him the power to declare war and conclude peace, and to enter into compacts and treaties with foreign states, etc. Before declaring war, except in the case of actual or threatened invasion of German territory, the Emperor must obtain the consent of the Federal Council.

It is the privilege and duty of the Emperor to see that throughout Germany the organizations are prepared for war and of the prescribed strength and that uniformity is established and preserved in organization, formation, armament, exercise of command, in the training of the men and the qualifications of the officers. To this end he is authorized to satisfy himself at any time by inspection of the constitution of the several contingents, that they contain nothing in conflict with these provisions, and to direct the correction of defects discovered therein. He determines the strength present, the arrangement of the contingents into divisions, corps, etc., the organization of the landwehr, and has the right of determining the location and strength of the garrisons within the German federal territory, and directing that any and every part of the German army shall be placed on a war footing. In case the public safety be threatened in any part of the federal territory, the Emperor may declare martial law in every part of it.

In order to maintain uniformity in administration, supply, armament, and equipment of all parts of the German army, the constitution provides that all instructions, relating to these subjects, that may in the future be issued for the guidance of the Prussian army, be communicated to the commanders of the other contingents. By virtue of the constitution the entire body of all Prussian legislative acts and regulations, instructions and decrees supplementary and explanatory thereof, was introduced throughout the German Empire.

All German troops are bound to obey the commands of the Emperor and acknowledge the obligation when taking the oath upon joining the colors. The commanding officers of

the contingents, of forces consisting of troops of more than one contingent, and the commanders of fortresses are appointed by the Emperor. The appointment of general officers or assignment to command as general officer within any of the contingents is subject to the approval of the Emperor in each case. He may select officers from any contingent for military positions which he has to fill.

Subject to the foregoing limitations the Sovereigns and the senates of the federal states and free towns appoint the officers of their contingents, unless they have surrendered that privilege.

Bavaria maintains an army of two army corps as a separate establishment with independent administration under the King. The Bavarian troops differ in color of uniform from all other German troops. Bavaria also maintains a separate general staff, war academy, and military training and educational establishments.

Württemberg and Saxony have their own ministers of war and their own administrations, but are more closely connected with the Prussian army than Bavaria, sharing as they do in the Prussian war academy and military training and educational establishments.

Next to the Emperor in the military hierarchy are the chiefs of the "army inspections." For purposes of command, recruitment, administration, and inspection of troops the country is divided into 5 "army inspections" and 19 army corps districts. The Prussian guard corps is not included in any of the 5 inspections, it being inspected by the Emperor and recruited from all Prussian territory. The "army inspectors" are really commanders of military districts, and probably the future army commanders in case of war.

The first army inspection, with headquarters at Hanover, comprises the 1st, 2d, 9th, 10th, and 17th army corps.

The second army inspection comprises the 5th, 6th, and 12th army corps; the headquarters of the inspection is at Dresden.

The third army inspection, with headquarters at Berlin, comprises the 7th, 8th, 11th, and 13th corps.

The fourth army inspection has its headquarters in Munich and embraces the 3d and 4th corps as well as the 1st and 2d Bavarian corps.

The fifth army inspection, with headquarters at Karlsruhe, embraces the 14th, 15th, and 16th corps.

ARMY CORPS.

The chief of the army corps is styled "the commanding general;" he supervises the exercises and watches over the tactical training and efficiency of all troops pertaining to the army corps. The interior affairs of the troops he leaves to the division and brigade commanders. Governors and commandants of fortresses within his district are under his orders. He arranges for the recruitment, mobilization, and public safety in conjunction with the chief of the civil administration. The staff of the corps commander consists of 3 officers of the general staff, 2 officers of the "adjutantur" (term explained below), one officer on waiting orders, the military intendant, corps judge advocate, corps surgeon, corps chaplain, and corps veterinarian.

THE DIVISION.

The division commander is a lieutenant general. He arranges for the combined troop exercises and has jurisdiction over all officers pertaining to his division. The staff comprises 1 officer of the general staff, 1 adjutant, 1 intendant, 1 surgeon, 2 judge advocates, and some chaplains.

THE BRIGADE.

The brigade is commanded by a major general or colonel, who watches over the interior service and training of the regiments and musters them. Infantry brigade commanders are usually also charged directly with the business of the recruitment.

THE REGIMENT.

The regiment is commanded by a colonel (lieutenant colonel or major), who arranges for the uniform training of all parts of his command, exercises the lower judicature, distributes the recruits among the battalions, and is responsible for the replenishment, maintenance, and safe-keeping of all clothing and equipment intended for peace and war service; he makes confidential reports on the qualifications of his officers, promotes the noncommissioned officers, and may transfer captains and lieutenants as well as men within the regiment.

THE BATTALION.

The battalion is commanded by the major in accordance with his instructions from the regimental commander; he watches over the training and discipline of the companies and over the clothing and equipment storerooms.

SPECIAL AUTHORITIES.

All troops are subordinated to the corps commander as regards discipline and training; as regards their special branches, however, the cavalry, field and foot artillery, pioneers, and rifles are under separate "general inspections."

There are two cavalry inspections which deal with purely cavalry matters—prepare the plans for the cavalry practice journeys. The inspectors direct the great cavalry exercises and inspect the horses.

The field artillery is under the field-artillery inspection as regards matériel and firing instruction.

The foot artillery is under the general inspection for foot artillery, which is divided into 6 inspections.

The general inspection of engineers, pioneers, and fortresses embraces the engineer committee, 3 engineer inspections, 3 pioneer inspections, and the inspection of military telegraphy.

The rifle and chasseur battalions are under the inspection of rifles and chasseurs.

The train depot of each train battalion is under the train-depot inspection (see "War Ministry").

The chief of the gendarmerie has under him the gendarmerie, a body of men charged with the public security, officered and recruited from officers and noncommissioned officers of the army and divided into brigades and districts. As regards discipline and interior affairs the gendarmerie is under the minister of war, as regards service under the minister of the interior.

V.—WAR MINISTRY.

There is in fact no such thing as an imperial German war ministry. Prussia, Saxony, Bavaria, and Württemberg have their own war ministries.

The real organs for military matters under the constitution of the empire are (1) the chancellor of the empire and (2) the "committee of the 'Bundesrath' for the army and fortresses."

The former need not be a soldier; the members of the latter are appointed by the Emperor, and Bavaria, Württemberg, and Saxony are always represented. The duties of the committee "are confined to the preparation of the military decrees of the Bundesrath, and the transmission of the orders that are to be issued for the Prussian army to the commanders of the other contingents. Nothing, however, as yet, has been done in the latter sense. The constitutional decree in question has become a dead letter as regards Bavaria and Saxony by tacit agreement, and as regards the other states by the conventions that have been concluded with them."

The Prussian war ministry, however, practically takes the place of an imperial war ministry, being located at Berlin, and having under it the great bulk of the German army and taking the initiative in matters of organization and administration. It requires, however, the concurrence of the imperial chancellor and the committee of the Bundesrath for the army and fortresses in all matters requiring the votes of Bundesrath and Reichstag.

THE PRUSSIAN WAR MINISTRY.

As above stated the Prussian war ministry located at Berlin may be regarded in a certain sense as the central organ of the whole fabric. The Prussian war minister always is a general, member of the Federal Council and Prussian Cabinet; he represents the German army in the Reichstag and the Prussian Diet. It is his duty to see that all laws, rules, and regulations in force pertaining to the army are carried out (excepting such matters as are reserved for the personal action of the Emperor and Sovereigns, such as appointments, promotions, etc., of officers). He communicates to the army all laws and imperial decrees with such details of explanation as he may deem necessary.

The war ministry is organized into the following divisions:

1.—*The Central Division.*

The central division deals with matters concerning the personnel of officers of the war ministry, affairs concerning the mobilization of the war ministry, funds for loans to officers, and archives of the war ministry. The division is divided into two sections:

First section.—The first section deals with matters concerning decorations, the "Druckvorschriften Etat" (serial collection of regulations issued), military statistics, and military literature; admittance of officers, medical officers, and officials not belonging to the Prussian army, to service, exercises, inspections, etc.; matters concerning the servants of the officers of the war ministry; and library of the war ministry.

Second section.—Personnel of the officials of the war ministry and the "intendanturen" (supply departments), compensation and relief funds of the war ministry and intendanturen, and funds for office expenses of the war ministry and the intendanturen.

The business of the war ministry so far as it involves points of law, matters of bonds, conflicts of authority, etc., is dealt with by "justitiaries."

2.—*The General War Department.*

The general war department is divided into the following seven sections:

1. *Army section.*—Organization of the army in peace and war, preparation of chapter 24 of the budget, recruitment, matters concerning the furloughed classes and landsturm, the large maneuvers of the troops and exercises of the ersatz reserve, "dislocation" (distribution) of the army, railway service, road and water constructions, "Etappen" affairs, military conventions, bicycles, furloughs and promotions, special matters of service concerning the general staff, including the national survey, of the railway troops, including

their field equipment, of the aerial navigation division, of semi-invalids, colonial troops, and troop exercise places.

2. *Infantry section*.—Special matters concerning the infantry, chasseurs and rifles, infantry establishments, garrison schools, military music, schools for the troops, target ranges for small arms (exclusive of construction and administration), supply of the army with small arms and small-arms ammunition, rifle and ammunition factories, small-arms inspection commission, and matters relating to armorers.

3. *Cavalry section*.—Special service matters of cavalry, military riding institution, military veterinary service, gendarmerie, field police, postal service, interior service, garrison service, police affairs, business methods in the army, military education and training, recruitment of officers of the peace strength, military libraries, and money allowances for horses.

4. *Field artillery section*.—Special service affairs of the field artillery and train, procurement, administration, and inspection of field artillery matériel and ammunition, field equipment of the army (exclusive of pioneers, railway troops, and aerial navigation troops), practice matériel of the train, and train depots.

5. *Foot artillery section*.—Matters especially concerning the foot artillery, procurement, administration, and inspection of the matériel and ammunition of the foot artillery as well as of high explosives, experiments in foot artillery matters, firing grounds of the foot artillery, examination commission of artillery, firing ground of Cummersdorf, artillery depots, ordnance and pyrotechnical personnel, examination commission for captains and first lieutenants of foot artillery, combined artillery and engineer school, questions of the general defense of the country, fortress warfare and armament (artillery), representation of the artillery in the construction of fortresses, the arsenal at Berlin.

6. *Fortress section*.—General matters of the engineer and pioneer corps, special matters concerning pioneers (including field equipment), questions of the general defense of the country, fortress warfare and armament (fortification), construction and maintenance of fortresses, electro-technics, telegraphs and illumination, mines in bridges and tunnels, carrier pigeons, telegraphers' school, and school of fortification.

7. *Technical section*.—Matters concerning the technical establishments of the artillery, administration of the experimental station for high explosives, relief funds for the sick, and accident, invalid, and old age, insurance. Under the direction of this section are the artillery shops at Spandau, Deutz, Danzig, and Strassburg; the artillery construction office at Spandau; the pyrotechnical laboratories at Spandau and Siegburg; the gun foundry at Spandau; the shell foundry at Siegburg, and the powder factories at Spandau and Hanau.

3.—The Personnel Division.

The personnel division is on the establishment of the war ministry, but is in fact the "military cabinet of the Emperor." In this division is the "secret military office."

4.—The Military Economical Department.

The military economical department has 5 sections:

1. *Financial section*.—The general military chest, ordinary and extraordinary inspections of the treasure chests, administration of certain items granted in the budget, general financial and "liquidation" matters, control of receipts and expenditures of the military administration, computation of war expenses, and matters relating to extraordinary credits.

2. *The provision section.*—All matters concerning the subsistence of troops, general accounts under chapter 25 of the military budget, replenishment of the magazines with materials in kind, supplying the troops with bread, forage, etc., military bakeries, supplying bread to soldiers' families during war, supplying fortresses, control of the issue of bread and forage.

3. *Clothing section.*—All matters concerning the standing army and landwehr, muster of troops, preparation of patterns of clothing and equipment, fixing the clothing allowance, administration of the corps clothing offices and personnel of officers and officials of these offices, personnel of paymasters and paymaster aspirants, subsistence of the ersatz and reserve men, administration of the officers' relief fund, commutation of quarters, travel and transportation compensations, contracts with railroads for the transportation of military persons and goods.

4. *Allowance section.*—All barracks excepting military educational institutions, officers' quarters and messes, shelter of troops, administration of building funds, interior administration of the war ministry, maintenance of troop exercise grounds, garrison churches, and cemeteries.

5. *Construction section.*—Personnel of the officials connected with construction, their supervision, general matters relating to garrison construction, preparation and administration of the items of chapter 28 of the budget, inspection of military buildings.

5.—Department for Invalids.

The department for invalids is divided into 3 sections:

1. *Pension section.*—Pensioning of officers, medical officers, and officials of the military administration of the commissioned grade.

2. *Relief section.*—Administration of the two great relief funds of the budget, and pensioning of military persons below the grade of commissioned officer.

3. *Employment section.*—Employment of inactive officers and men, military societies, execution of punishments, disciplinary detachments, military clergy, justice, courts of honor, matters of pardon, extradition, marriage, election, muster rolls, colors, and soldiers' homes.

6.—Remount Division.

The remount division deals with matters pertaining to the supply of remounts and officers' chargers, and has supervision over the administration of the remount depots. The remount purchase commissions are subordinated to this division, while the remount depots are subordinated to the remount purchase commissions as follows:

To the 1st remount purchase commission, the depots of NeuhoF-Ragnit, Kattenau and Brakupönen; to the 2d, the depots of Jurgaitschen, Sperling, and Liesken; to the 3d, the depots of Preussisch Mark, Weeskenhof, Wirsitz, and Wehrse; to the 4th, the depots of NeuhoF-Treptow, Bärenklau, and Ferdinandshof, and to the 5th, the depots of Hunnesrück, Arendsee, and Mecklenhorst.

7.—The Medical Division.

The medical division deals with matters of military sanitation and hygiene, sanitary police, and sanitary statistics of the army, technical supervision of the recruit examination, supply of medicines, dressings, and surgical instruments, the entire peace, field, and fortress hospital service, the military medical institutions, bathing establishments, military apothecaries, hospital attendants, and nurses.

The following were the officers on duty at the war ministry in 1895: 1 general of infantry, 1 lieutenant general, 3 major generals, 7 colonels, 9 lieutenant colonels, 33 majors, 17 captains, and 2 lieutenants.

The following committees, inspections, etc., are under the war ministry: The inspection of infantry schools, the small-arms testing committee, the inspection of small-arms and ammunition factories, the cavalry committee, the military riding institution, the artillery testing committee, the artillery depot inspection, the artillery construction bureau, the artillery workshops, the gun foundry, the projectile factory, the pyrotechnical laboratories, the powder factories, the experimental station for high explosives, arsenal administration at Berlin, the train depot inspection, the inspection of the military veterinary service, the inspection of the military disciplinary establishments, the examination committee for superior military surgeons, the medico-surgical Frederick William institution, the medico-surgical academy for the army, and the Protestant and Catholic field clergy.

VI.—THE MEDICAL SERVICE.

The department of this service forms the 7th division of the war ministry and is presided over by the surgeon general of the army. The sanitary personnel consists of the medical officers, the hospital assistants, nurses, and litter bearers.

THE MEDICAL OFFICERS.

This category of officers consists of the commissioned and noncommissioned branches, graduates of medical schools serving the second half of their one year of service as "one-year volunteer surgeon" with the rank of sword-knot subofficer, which rank is also held by the subsurgeon (*i. e.*, the graduate of a medical school who has satisfied his military obligations and enters the medical service of the army for promotion, prior to his appointment to the commissioned branch of the medical corps).

The commissioned branch of the medical corps holds assimilated rank.

Medical officers are either assigned to troops or hospitals, the former being generally at the following rates: 7 to the infantry regiment, 2 to the independent battalion, 2 or 3 to the cavalry regiment, 5 or 6 to the field artillery regiment, 4 to the foot artillery regiment of 3 battalions, 3 to the foot artillery regiment of 2 battalions, 1 or 2 to the independent battalion of foot artillery, 2 to the pioneer battalion, 4 to the railway regiment, 1 or 2 to the train battalion.

The corps surgeon regulates the medical service in his corps; under him are the divisional surgeons (the senior surgeons of the grade of field officer present at division headquarters being the divisional surgeon). The corps surgeon is particularly charged with the recruitment of the medical officers in his army corps. A part of the medical officers is supplied by the two military surgical institutions; the remainder is supplied from graduates of medical schools who desire to enter the medical service of the army.

HOSPITAL ASSISTANTS, NURSES, AND LITTER BEARERS.

In time of peace there is to be one hospital assistant for each company, squadron, battery, train battalion, and noncommissioned officers' school. The men are taken from the ranks after not less than 6 months' service and trained in the lower branches of the sanitary service, and after passing the prescribed examination may be employed in hospitals or remain with the troops. They correspond somewhat to our hospital stewards.

Nurses are trained annually at the rate of 34 to 49 to each army corps, dependent on circumstances.

Litter bearers are trained in numbers dependent on the requirements of the sanitary detachments and the troops of the mobile army.

The administration of the hospital is conducted by the *intendance*, not by the surgeon in charge.

VII.—THE GENERAL STAFF.

Bavaria, Würtemberg, and Saxony have their own establishments of general staff officers as follows: Würtemberg 4, Saxony 11, Bavaria 24.

The Würtemberg and Saxon general staff officers receive their training in the Prussian war academy and general staff, while Bavaria provides for the training of her own general staff officers and maintains a war academy at Munich.

THE PRUSSIAN GENERAL STAFF.

The official appellation of this category of officers is "the general staff of the army." It consists of the chief of the general staff, "Haupt-Etat" (principal establishment) of the general staff, and the "Neben-Etat" (auxiliary establishment) of the general staff.

The cabinet order of July 7, 1888, defines the duties of the general staff as follows:

"The duties of the general staff are as follows:

"I.—Collecting, adding to, and arranging military information necessary for a knowledge of our own and foreign states, and

"II.—The further training of officers of the general staff and of the officers attached to it for duty.

"The following are among the duties under head I:

"(1) Acquisition and preservation of an accurate knowledge of (a) the physical conditions of the monarchy so far as they affect warfare; (b) constructions and establishments of all kinds pertaining to warlike preparations in the most extended sense of the word and which are of importance in offensive and defensive movements, as fortresses, magazines, hospitals, seaports, land and water routes, etc.; (c) the organization of the army, and royal orders and ministerial decrees referring to recruitment, discharge, armament, clothing, subsistence, training, exercises, shelter, mobilization, etc.

"(2) The collection and arrangement of the most accurate possible information of the warlike establishments of other states, of foreign armies, their strength, organization, regulations, method of shelter and readiness for war, means for increasing their strength, acquisition and preservation of a current knowledge of foreign fortresses, their military importance and arrangement, and system of fortification followed in foreign states.

"The duties under the second head comprise all exercises and problems given for the further training particularly of the younger officers of the general staff; among them are (a) description of former military events according to the records contained in the archives of the general staff, (b) the reconnoitering journeys, and (c) the practice journeys."

THE CHIEF OF THE GENERAL STAFF.

This officer is directly under the King and Emperor, the incumbent generally being a high-ranking general officer. His duties comprise among other things the disposition of troops in time of war and the directing of the larger units. He superintends the training

of officers for the general staff as well as their further training after they have been commissioned in the general staff. The railway brigade, aerial navigation division, war academy, and the department of the national survey are under his direction. Less directly, and in conjunction with other departments and authorities, he has supervision over the training and fighting efficiency of the troops and of the national defense, being a member of the "Committee on National Defense."

THE "HAUPT-ETAT" AND THE "NEBEN-ETAT."

As regards personnel, the general staff of the army consists of the "Haupt-Etat" and the "Neben-Etat," officers belonging to the latter being generally selected for distinction in some particular scientific branch. As regards their duties, the officers of the general staff of the army are divided into the "great general staff" and the "general staff attached to troops."

The budget for 1895 provides for a Haupt-Etat consisting of 1 chief of the general staff, 1 superior quartermaster (chief of the survey), 3 superior quartermasters, 6 chiefs of sections, 19 subchiefs of sections, and 119 officers, making a total of 149 officers in all; and for a Neben-Etat consisting of 5 chiefs of sections and 53 officers, making a total of 58 officers in all.

Under the heading of "general staff" the budget also provides for 14 field officers as commissioners to lines of railway, and 6 field officers as railway commissioners.

In addition to these officers, the army list for 1895 shows 2 lieutenant colonels, 7 captains and 1 first lieutenant attached, 3 lieutenant colonels, 5 majors, 18 captains *à la suite*, and 1 major, 6 captains, 71 first lieutenants detailed for duty with the general staff, and 1 captain and 2 first lieutenants attached to the Neben-Etat.

THE GREAT GENERAL STAFF.

The great general staff is organized into a central section and other sections as follows:

(a) The central section is under a major general, who relieves the chief of the general staff of much detail; the adjutants of the latter are on duty in this office. The section deals with the personnel of the general staff and organization and financial affairs connected therewith.

(b) The first section (and also the second and third) keeps informed of all events and improvements at home and abroad of a military scope, of all matters concerning organization, training, recruitment, armament, equipment, etc., of foreign armies; the section has assigned to it for that purpose Russia, Austria, Sweden, Norway, Denmark, the Balkan Peninsula, and Asiatic Russia.

(c) The second section deals with the same matters concerning Germany.

(d) The third section deals with the same matters concerning England, France, Italy, Belgium, Holland, Switzerland, Spain, Portugal, America, and Asia exclusive of Russian Asia.

(e) The fourth section deals with matters of fortification, fortresses, and technical engineer affairs.

(f) The fifth section has charge of the library and military records and is styled the military historical section.

(g) The sixth section is the railway section and is charged with all matters concerning the military use of railways. "The railways of the German Empire are divided into lines for military purposes, these lines corresponding so far as is practicable to the great railway companies or state managements. For each of these lines there is in time of peace a 'line

commission,' its duty and business being to make arrangements for and superintend all movements of troops by rail. Each of the commissions is presided over by a field officer and a civil railway official of high rank."—(Schellendorff, "The Duties of the General Staff.")

Each of these sections is in charge of a chief of section, who has under him, according to the work in hand, certain general staff officers, besides officers of the Neben-Etat, and other officers attached. With the exception of the central section and military historical section, the foregoing sections are besides under the chief quartermasters, as follows: The second and railway sections are under the first superior quartermaster; the fourth and geographical-statistical sections are under the second superior quartermaster; the first and third sections are under the third superior quartermaster.

One of the superior quartermasters is in charge of the national survey.

(h) The geographical and statistical section, together with the survey section, forms part of the Neben-Etat of the general staff, and is charged with collecting and compiling military geographical data of any European territory likely to become the theater of war.

(i) The national survey is under the "Chief of the Survey," who in turn is under the orders of the chief of the general staff. The section is divided into three divisions—(1) the trigonometrical division, (2) the topographical division, and (3) the cartographical division.

(1) The trigonometrical division, as its name indicates, is charged with the triangulation of the country (erecting 10 monuments in stonework per German square mile [German mile equal to 4.68 English miles], besides fixing other suitable objects), the determination of heights, and the preparation of the topographical survey of such other German countries as may be stipulated. The personnel is as follows: 1 chief of division and 6 directors, officers of the general staff; 1 director (employee); 6 attached officers, and 26 surveyors and assistant surveyors.

(2) The topographical division is charged with the topographical survey of German territory, except Würtemberg, Saxony, and Bavaria, the original scale on the plane-table sheets being 1:25,000. The personnel of the division is as follows: 1 chief and 9 directors, officers of the general staff; 23 attached officers, and 84 surveyors and assistant surveyors.

(3) The cartographical division, as its name indicates, is intrusted with the preparation and custody of all maps approved by the central direction, or ordered by the chief of the survey, and the plates, stones, and other printing material. All the printing and drawing for the general staff is also done here. The personnel is as follows: 1 chief and 2 directors, officers of the general staff; 2 directors (employees); 31 draftsmen and assistant draftsmen; 3 technical inspectors; 1 director of printing; 1 chief photographer; 49 lithographers (engravers on copper), and 2 photographers; 11 printers (including 1 electrotpe printer), and 11 assistants and other employees, engravers, etc.

The clerical personnel belonging to the general staff numbers 83 persons, of whom 36 are employed on the survey.

THE GENERAL STAFF ATTACHED TO TROOPS.

Officers of the general staff of the army are attached to the corps and division headquarters at the rate of 1 chief, 1 field officer, and 1 captain, and 1 field officer or captain to the division. A number of them are also attached to the staffs of fortresses. The army list for 1895 shows 90 officers so employed (7 majors and 1 captain being on the staff of fortresses).

CORPS HEADQUARTERS.

At corps headquarters the office work is performed under the direction of the chief of staff, who is authorized to give orders in his chief's name when the latter is absent. In the

absence of the chief of staff the senior officer in the office, whether of the general staff or adjutantur, takes charge of the office. In the absence of both, the corps commander and the chief of staff, the senior division commander gives the necessary orders. All the business at corps headquarters is divided into 4 sections as follows: 1st section, general staff; 2d section, adjutantur; 3d section, judge-advocate department; 4th section, commissariat, and medical and religious matters.

In the first section, which alone concerns us here, the following matters are dealt with: Marches, quarters, movements of troops, drills and maneuvers, choice of drill grounds, mobilization, roads, railways and telegraphs, frontier and political questions, the strength, condition, and distribution of neighboring foreign armies, bridging and pontooning, engineer and artillery matters, the armament of fortresses, matters connected with deserters, maps, and the intelligence department.

DIVISION HEADQUARTERS.

The division of duties at division headquarters is analogous to that obtaining at corps headquarters, but the general staff officer of the division does not have the same power as the chief of staff of the army corps; indeed, if any of the officers on duty in the office is senior to him, such officer will be in charge of the office.

Before proceeding further a few words should be said of the officers of the "adjutantur." Each corps headquarters comprises two, and sometimes three adjutants with the rank of major or captain; the division and brigade have one each. These officers are not carried on the establishments of regiments, but form a separate item on the budget. They are selected on account of special qualification and may or may not have passed through the war academy. Their duties at corps headquarters are given in Schellendorff's "Duties of the General Staff" as follows: "Orders, garrison duties, returns and reports, matters affecting the personnel of officers and men, religious persuasions and orders, regimental duties, recruiting and landwehr, discharges, pensions, remounts, and arms and ammunition." Their duties therefore correspond to a great extent to those performed by our assistant adjutants general.

APPOINTMENT TO THE GENERAL STAFF.

Annually some seventy first lieutenants selected from the most distinguished graduates of the war academy and the most promising regimental officers are attached to the great general staff for training in staff work. Of these the most gifted are nominated to and appointed by the Emperor to the general staff, the number depending on the number of existing vacancies. After a tour of duty of 3 years with the general staff, the captains return to their original branches of the service for 2 years, commanding a squadron, battery, or company, as the case may be, when they reenter the staff as majors, having gained about 2 years in their promotion to a captaincy and about 5 years in their promotion to a majority. If the officer has not been quite satisfactory, he may not be recalled to the staff after 2 years' service as company commander. The majors of the general staff are usually assigned, without regard for their original arm, to the command of a battalion of infantry, and no one is appointed a general who has not been a regimental commander.

VIII.—THE ADMINISTRATION.

The German army administration is conducted through a department styled the "Intendantur." The system was outlined by the cabinet orders of November 1, 1820, and the ministerial instructions of January 16, 1821. It is stated in the cabinet order that it is the

purpose to establish a department which is to have unlimited supervision over all branches of military finance within its territorial districts, particularly the subsistence offices, hospitals, funds and money accounts of troops, and that the head of the department is to be held strictly responsible for all irregularities in financial matters occurring with his territorial district. In its present shape the administration was established by the cabinet order of June 27, 1861, which provides a "corps intendantur" (corps intendance office) and a "division intendantur" for every army corps and division; the order states that the administration of the army in peace is to be one suitable for war, that its officials be brought into closer contact with the troops, that the business system be simplified and clerical work reduced.

THE CORPS INTENDANTUR.

The corps intendance office is divided into 5 sections as follows: (1) The financial section, (2) the provision section, (3) the clothing section, (4) the garrison administration section, and (5) the hospital section.

The personnel of the office consists of 1 corps intendant (chief of the intendance department of the corps), 5 chiefs of sections, 1 assessor (as assistant), 7 to 12 secretaries, 3 to 6 assistant secretaries, 2 registrars, and 1 assistant registrar.

The corps intendance office deals with all military financial affairs of the army corps or territorial subdivision, which either are of a "territorial" (sedentary) character (and thus continue to pertain to the "acting" (stellvertretenden) intendance in case of mobilization) or require uniform direction. Within the scope of the corps intendance office come also the military financial affairs of the troops, officers, nonregimental officers, and officials not attached to the division. The duties of the corps intendantur therefore comprise—

The general financial and budgetary matters, relations with the corps disbursing offices, auditing their accounts, and the training and appointment of troop paymasters;

The procurement and administration of articles of subsistence and forage for the troops of the corps, the direction and supervision of all magazines established for such articles, the personnel of the subsistence officials, and procurement of the cloth and other articles required for clothing and equipment of the army corps;

The responsibility for the acquisition and administration of all grounds, premises, utensils, and materials required for the shelter and medical treatment of troops of the corps, direction and supervision of the garrison and hospital administrations, and the personnel of the officials pertaining to these administrations;

The regular share of the office in the administration of matériel and finance of the educational, instructional, and training establishments, the technical institutions of the artillery and engineers, and the remount depot administrations;

Matters pertaining to the mobilization of the field administrative offices of the corps;

Payment of indemnities to communities for furnishing quarters and medical treatment, provision and forage, and transportation.

The military financial affairs of the troops, authorities, nonregimental officers, and officials of the corps not pertaining to a division are dealt with by the corps intendantur to the same extent as these matters in case of troops, etc., belonging to a division are dealt with by the division intendantur.

THE DIVISION INTENDANTUR.

The personnel of the division intendance office consists of 1 divisional intendant (chief of the division intendantur), 2 secretaries, and 1 assistant secretary.

Within the scope of the divisional intendance come the military financial affairs of the troops, officers, nonregimental officers, and officials belonging to the division. It deals therefore with—

All matters of salary and pay, commutation of quarters and traveling allowances of troops, authorities, nonregimental officers, and officials belonging to the division;

The control of books, funds, and money accounts, transfer of funds, and the making of the "unexpected inspections" of money accounts and funds;

Matters relating to clothing and equipment of the troops of the division, participation in the muster (not in our sense of the word) of the troops;

All matters relating to the subsistence of traveling detachments of recruits, reservists, and remounts, all extraordinary money allowances of the troops of the division;

Supervision of the local administration in point of timely issues to troops in the manner and of the quality prescribed.

The divisional intendantur is under the corps intendant, but the above-mentioned duties of the divisional intendance are performed without reference to the corps intendant, while in all matters described above as territorial no action is taken except upon direction from the corps intendance.

It is the duty of the divisional intendance to frequently inspect the quality of the provisions, materials, utensils in store, as well as the buildings for troops and other military buildings. No interference with the local administration is permitted, except in case of urgent necessity, but report is in all cases to be made to the corps intendant.

In the ordinary transaction of business the office is bound by the rules and regulations and obliged to abide by the decision of the division commander.

On extraordinary occasions and in cases not provided for by the regulations, corps and division intendants are bound by the orders, in writing, of the corps and division commanders, the former reporting the fact at once to the war ministry, the latter to the corps intendant.

As regards matters of administration the divisional intendant and his subordinates are under the disciplinary power of the corps intendant, with the war minister as next instance, in other matters also under the power of the divisional commander.

The corps intendant is subordinated to the corps commander.

IX.—ORGANIZATION.

At present the German army is made up of 173 regiments of infantry of 3 battalions and 1 half battalion, 19 rifle battalions, 93 regiments of cavalry of 5 squadrons each, 43 regiments of field artillery with a total of 494 batteries, 17 regiments of foot artillery with a total of 37 battalions, 23 battalions of pioneers, 7 railway battalions, and 21 train battalions.

In point of numbers of the several arms the budget for 1895-96 provides for—

Infantry.—12,918 officers, 48,448 noncommissioned officers, and 332,424 men, not counting 1,266 medical officers, 724 paymasters and music inspectors, and 724 armorers. These troops are distributed among 173 regiments of infantry, 19 rifle battalions, an instructional battalion, 8 noncommissioned officers' schools, 2 musketry schools, and 290 headquarters of enrollment districts.

Cavalry.—2,352 officers, 9,354 noncommissioned officers, 56,145 privates, 229 medical officers, 96 paymasters and music inspectors, 317 veterinarians, 93 armorers, 93 saddlers, and 64,004 horses, distributed among 93 regiments, the central riding institution, and 2 schools of equitation.

Field artillery.—2,671 officers, 10,214 noncommissioned officers, 48,210 men, 261 medical officers, 175 paymasters and music inspectors, 198 veterinarians, 175 armorers, and 29,044 horses distributed over 43 regiments and the field artillery firing school.

Foot artillery.—869 officers, 4,194 noncommissioned officers, 18,663 privates, 57 medical officers, 38 paymasters and music inspectors, 37 armorers, and 37 horses, distributed among 17 regiments and 1 battalion, the foot artillery firing school, and the experimental company of the artillery experimental committee.

Pioneers.—729 officers, 2,950 noncommissioned officers, 16,068 privates, 60 medical officers, 34 paymasters and music inspectors, 30 armorers, distributed over 23 pioneer battalions and 7 railway battalions.

Train.—307 officers, 1,679 noncommissioned officers, 5,952 privates, 27 medical officers, 21 paymasters, etc., 21 veterinarians, and 4,195 horses, distributed over 21 battalions.

Special formations.—486 officers, 1,067 noncommissioned officers, 1,765 men, 32 medical officers, 13 paymasters, etc., 18 veterinarians, and 1 armorer.

Nonregimental officers and men.—2,286 officers, 75 noncommissioned officers, 2 privates, 140 medical officers, 1 music inspector, and 25 veterinarians.

Total.—22,618 officers, 77,981 noncommissioned officers, 479,229 privates, 2,072 medical officers, 1,102 paymasters and music inspectors, 579 veterinarians, 1,060 armorers, 93 saddlers, and 97,280 horses.

The troops are organized in 20 army corps, 16 Prussian, 2 Bavarian, 1 Saxon, and 1 Würtemberg.

X.—THE ARMY CORPS.

The normal peace formation of the army corps comprises 2 infantry divisions, 1 battalion of rifles, 1 brigade of field artillery, 1 regiment of foot artillery, 1 battalion of engineers, 1 train battalion, and the staff and auxiliary services. The composition of the corps varies, however, and the following are some of the exceptions to the rule:

The guard corps has a cavalry division of 4 brigades of 2 regiments each and 4 horse batteries; none of the other corps have cavalry divisions; their horse batteries vary from none to 4 per corps and the field batteries from 18 to 23 per corps; one corps has 27, and two others 30 field batteries each. Seven of the corps have no rifle battalion, one has 2, one 3, and another 4. Three corps have 3 infantry divisions each. The number of squadrons with the corps varies from 20 to 30. The batteries average 24 to the corps.

WAR FOOTING.

On a war footing the corps comprises the staff, 2 or 3 infantry divisions (depending on whether or not the reserve division of the corps is incorporated), 1 rifle battalion, the corps artillery, the train battalion, the ammunition columns, and the corps telegraph detachment. The ammunition columns are under the chief of artillery of the corps and comprise 4 infantry and 6 artillery ammunition columns. The train comprises 3 provision columns, 7 wagon park columns, 1 field bakery column, 1 horse depot, and 1 corps bridge train and 12 field hospitals.

XI.—THE DIVISION.

The normal formation of the division calls for 2 brigades of infantry of 2 regiments each, and 1 brigade of cavalry of 2 regiments.

WAR FOOTING.

On a war footing the infantry division comprises 2 brigades of infantry of 2 regiments each, 1 regiment of cavalry of 4 squadrons, 2 groups of 3 field batteries each, 1 company of pontoniers, 1 bridge train, 1 telegraph section, and a sanitary detachment.

XII.—THE INFANTRY.

The infantry regiment consists of 3 battalions of 4 companies and 1 half battalion of 2 companies. The peace strength differs in the several regiments as they have the high, medium, or low establishment, which in turn depends on their location, regiments on the frontier being stronger than others.

The normal establishment is 8 officers and 193 men for the half battalion, 18 officers and 607 men for the battalion, and 65 officers and 2,020 men for the regiment.

WAR FOOTING.

The strength of the regiment on a war footing (3 battalions) is 79 officers and 3,149 men; the strength of the battalion is 25 officers and 1,033 men.

XIII.—THE CAVALRY.

In time of peace the cavalry is organized in 46 brigades of 2 regiments each, except one, which has 3 regiments. As a rule, 2 brigades are attached to the army corps, the exceptions being the guard corps with 4 brigades and 3 other corps each with 3 brigades. The cavalry stands under the orders of the corps commander as regards its general service, and under the inspectors general of cavalry in technical cavalry matters. The cavalry is distributed among two cavalry inspections.

REGIMENTS AND SQUADRONS.

There are 10 regiments of cuirassiers, 28 of dragoons, 20 of hussars, 25 of uhlans, 2 heavy Saxon and 2 heavy Bavarian regiments, and 6 light Bavarian regiments; in all, 93 regiments or 465 squadrons. All regiments have 5 squadrons on the peace footing, of which 4 take the field on mobilization, the 5th squadron remaining at home as depot squadron after filling up the ranks of the field squadron to war strength.

The strength of the regiments differs according as to whether they have the high, medium, or low establishment, from 25 officers and 682 men to 25 officers and 762 men; the strength of the squadron is from 133 to 149 men with 4 or 5 officers.

WAR FOOTING.

On a war footing the regiment numbers 23 officers and 660 rank and file and the squadron numbers 6 officers and 160 rank and file.

XIV.—THE FIELD ARTILLERY.

The field artillery is organized in 20 brigades which, as a rule, contain 2 regiments each; 3 of the brigades are formed of 3 regiments. One brigade is attached to each army corps. The regiment is subdivided into "abtheilungen" (battery divisions or battalions), which may contain 2 or 3 batteries each. The number of abtheilungen in each regiment varies.

Thus the 5th Bavarian field artillery regiment contains 2 abtheilungen of 3 batteries each and 1 abtheilung of 2 horse batteries; in all, 8 batteries to the regiment; while the 5th Prussian field artillery regiment contains 3 abtheilungen of 3 and one of 2 batteries, besides an abtheilung of 2 horse batteries. There are in all 447 field and 47 horse batteries. The batteries of the low establishment (182 field and 23 horse batteries) have in time of peace but 4 of the 6 guns horsed; those of the medium establishment (214 field and 4 horse batteries) have 6 guns horsed; the 57 field batteries of the high establishment have 6 guns and 2 to 3 ammunition wagons horsed; the 20 horse batteries of the high establishment have 6 guns and 2 ammunition wagons horsed. The guns are of 88-mm. caliber.

The strength of the battery varies with the establishment, and ranges in the field battery from 4 officers and 107 men to 4 officers and 120 men; in the horse battery from 4 officers and 91 men to 4 officers and 120 men. The number of horses varies in the field battery from 44 to 75; in the horse battery from 76 to 120.

WAR FOOTING.

Field batteries consist of 5 officers, 170 rank and file, and 6 guns; horse batteries, 5 officers, 170 rank and file, and 6 guns. The normal group of 3 batteries consists of 19 officers, 512 rank and file, and 18 guns.

On mobilization, each infantry division retains the regimental staff and 2 abtheilungen of 3 batteries each from its own divisional artillery regiment as its divisional artillery. One abtheilung from one regiment and 2 abtheilungen of 3 and 2 batteries respectively of the other field artillery regiment of the artillery brigade form the corps artillery, the former regiment giving up its horse artillery to the cavalry divisions. One abtheilung forms the nucleus for the formation of a field artillery regiment to be formed for the reserve division of infantry pertaining to the corps.

Each regiment mobilizes 2 infantry and 3 artillery ammunition columns. The regiment which gives its horse artillery up to the cavalry division, also mobilizes an ammunition column for that cavalry division.

XV.—FOOT ARTILLERY.

The foot artillery is grouped in 15 regiments of 2 battalions and 2 of 3 battalions each and 1 independent battalion, in all 37 battalions of 4 *companies*. There is also a school battalion of 3 companies. The independent battalion numbers 20 officers and 597 men; the regimental battalion numbers 20 officers and 596 men; the 2-battalion regiment numbers 43 officers and 1,194 to 1,200 men; the 3-battalion regiment numbers 64 officers and 1,783 to 1,789 men, and the company numbers 4 officers and 145 to 146 men.

WAR FOOTING.

On mobilization the battalion forms a landwehr and landsturm battalion from the cadres. The arm provides siege artillery troops, siege parks, and siege ammunition park columns. The strength of the battalion is 24 officers and 1,000 men.

Judging from the fact that the Germans have provided horses and harness for some of their foot artillery, recent statements in military publications, that the heavy artillery will be used in the line of battle, would seem to be justified.

XVI.—PIONEERS.

There are in all 23 pioneer battalions with 97 companies, as follows: 19 Prussian, 1 Saxon, 1 Würtemberg, and 2 Bavarian. There is one battalion for each army corps, an extra battalion being each at Königsberg, Metz, and Strassburg. The Prussian and Würtemberg battalions consist of a staff and 4 companies (3 field and 1 fortress); the guard battalion has 5 companies; the 5th being a telegraph company. The Saxon battalion has 6 companies. The Bavarian battalions have 5 companies, of which 3 are field and 2 fortress companies, without telegraph sections.

The strength of the guard pioneer battalion is 29 officers and 765 men; of the other Prussian battalions 24 officers and 613 men. The battalion staffs number 4 officers (exclusive of 2 medical officers) and 15 rank and file, except in the Saxon battalion, where there is an additional assistant surgeon and 3 additional rank and file.

The strength of the company is 4 officers and 150 rank and file, except in the Würtemberg battalion, where the company comprises 4 officers and 125 rank and file.

WAR FOOTING.

On mobilization the battalion is broken up and forms (a) the battalion staff, which is attached to corps headquarters; (b) 3 companies of field pioneers (one for each division—the 3d is attached to one of the divisions, but remains at the disposal of the corps commander); (c) 2 divisional bridge trains under the charge of the divisional pioneer company and (d) 1 corps bridge train with a pioneer detachment of 2 subalterns and 63 men.

Each divisional pioneer company detaches 18 rank and file to the divisional bridge train.

The corps bridge train comprises 3 officers, 1 medical officer, 1 paymaster, 1 veterinarian, 127 men, 222 horses, 34 wagons, and a pioneer detachment of 2 subalterns and 63 men.

The divisional bridge train comprises 2 officers, 52 men, 87 horses, 14 wagons, and a pioneer detachment of 18 men.

The pioneer company numbers 5 officers and 212 men, 3 medical officers and officials, 19 horses, and 4 wagons.

The total strength of the pioneer battalion of the mobilized army corps numbers 26 officers, 935 men, 12 medical officers and officials, 467 horses, and 75 wagons.

The fortress pioneer company comprises 4 officers and 201 men.

The depot company formed by the battalion comprises 4 officers, 1 medical officer, 1 paymaster, 264 rank and file, and a workman section of 5 officers and 70 men.

The telegraph company of the guard pioneer battalion is broken up and reenforced from the reserve and civilian telegraphers and furnishes 5 army, 20 corps, and 4 etappen telegraph sections.

The telegraph section contains 13 wagons.

XVII.—RAILWAY TROOPS.

There are 7 battalions of railway troops, viz, 1 brigade of 3 regiments of 2 battalions of 4 companies each, and 1 Bavarian battalion.

To the first regiment of the brigade the balloon troops are attached; the second regiment contains 1 Würtemberg and 2 Saxon companies.

The Bavarian battalion comprises 3 companies and a section of balloon troops.

The regiment comprises 48 officers, 4 medical officers, 5 paymasters and armorers, and 1,124 rank and file.

The Prussian battalion comprises 22 officers, 2 paymasters and armorers, and 600 rank and file.

The balloon detachment numbers 5 officers and 115 rank and file.

The railway company numbers 5 officers and 150 rank and file.

The military railway Berlin-Jüterbog is managed by the Prussian railway troops, in particular by the 2d regiment.

WAR FOOTING.

The war strength is not known, but the regiments are broken up each into 4 operating companies, 8 construction companies, and 2 companies of workmen (for service at the stations). Each regiment forms a depot.

XVIII.—THE TRAIN TROOPS.

The train troops are organized in 21 battalions as follows: 17 Prussian battalions of 3 companies each (except one, which has 2), 1 Saxon battalion which has 4 companies, 1 Würtemberg battalion of 3 companies, and 2 Bavarian battalions of 3 train and 1 sanitary company each.

The strength of the 3-company battalion is 14 officers, 1 to 2 medical officers, 2 paymasters and armorers, 346 rank and file, 2 officers' and 189 troop horses (not counting condemned horses retained in the service).

The strength of the company is 4 officers, 111 to 113 rank and file, 15 riding and 48 draft horses. The 14th and 15th battalion have each 44 horses for horsing heavy foot artillery batteries of the corps of the same numbers.

WAR FOOTING.

On mobilization each battalion forms a depot. The train battalion of each corps (the 11th corps has 2) forms, or forms part of the formation of, 3 provision columns, 7 wagon park columns, 1 field bakery column, 3 sanitary detachments, 12 field hospitals, and 1 horse depot. The strength is 74 officers and officials and 2,345 rank and file.

XIX.—PONTONIER TROOPS.

The pontonier service is performed by the pioneers.

XX.—TELEGRAPH TROOPS. (See Pioneers.)

XXI.—TOTAL STRENGTH.

PEACE FOOTING.

The total peace strength is 584,734 officers and men of all grades.

WAR FOOTING.

Active army, reserves, and first ban of landwehr	2,000,000
Second ban of landwehr	1,000,000
Landsturm	700,000
Total	3,700,000

XXII.—PROSPECTIVE STRENGTH.

Taking the annual contingent incorporated in the army as 228,000 men, the following will be the war strength, when the new law has produced its full effect (after a deduction of 4 per cent from the first, 3 per cent from the second, and 2 per cent from all succeeding contingents):

Field army, 7 contingents (exclusive of officers and noncommissioned officers of standing army)	1,430,764
First ban of the landwehr, 5 contingents	903,548
Second ban of landwehr, 7 contingents	1,121,052
Second ban of landsturm (men who have served in the standing army only) -	842,492
Total	4,297,856

Calculating the ersatz reserve as 90,000 annually and making the same deductions, 25 contingents will yield 1,700,000 men, part of whom have received slight training, and the men assigned to the first ban of the landsturm annually, also about 90,000, will also yield 1,700,000 men. The total number of men between 20 and 45 years of age available for national defense would thus be 7,697,856, of whom 4,297,856 are thoroughly trained soldiers.

HOLLAND.

A.—HOME ARMY.

I.—AREA AND POPULATION.

The kingdom of Holland has an area of 12,648 square miles and a population (December 31, 1894) of 4,795,646, or 379 per square mile. The colonial possessions of Holland amount to 783,000 square miles, with a population of 34,000,000.

II.—THE COMMAND.

The command of the army is nominally vested in the Sovereign, who governs through responsible ministers, appoints and promotes all officers, and approves all regulations, etc., before they are published through the minister of war. All officers and men are bound to obey the Sovereign. In time of peace the Sovereign exercises the chief command through his minister of war; in time of war through a specially appointed commander in chief.

III.—AVAILABLE STRENGTH.

The number of young men available for military service in 1893 was 42,116. The contingent incorporated in the army from the above number was 10,400, other modes of enlistment bringing the total contingent of the army up to 15,600 men, and giving a peace strength of about 21,500 officers, noncommissioned officers, men, and employees. This refers to the home army, which is entirely distinct from the colonial army, to be considered later.

IV.—CONDITIONS OF SERVICE.

The army is recruited both by voluntary enlistment and by conscription. The maximum number of volunteers for each corps is fixed, and the balance of the men are drawn from the militia (in the total strength for 1895 there was a deficiency of 5,738 volunteers and a surplus of 13,688 militia). The term of enlistment of the volunteers is from 6 to 8 years in the active army (depending on age of enlistment). The militia is recruited by drawing lots among the young men of 20 years of age available for military service and of which there were 42,116 in 1893, as stated above. The term of service of the militiaman is fixed for the classes of 1893 to 1895 at 7 years in the army and its reserve. After one year's service (generally somewhat less than a year for the dismounted services) with the colors he is sent on unlimited leave subject to being recalled for two trainings of 4 to 6 weeks. They are then passed to the "Schutterij," where they remain for three years, after which they are passed to the reserve of the "Schutterij," where they remain for 5 years, and from there to the landsturm, where they are liable to be called out for defense of the country in case of invasion up to the age of 50 years.

There are certain exemptions and excuses before presentation for conscription, and of the number who present themselves there are further exemptions consisting of physical ineptitude, studies, service of brother, support of family, services already rendered, and functions connected with the ministry of religion.

Substitution and the exchange of numbers at the time of the drawing of lots are permitted, as is purchase, but not as this is understood in our service.

V.—MILITARY EXPENDITURE.

The annual war budget amounts in round numbers to \$9,132,000.

VI.—ORGANIZATION.

For political purposes the kingdom is divided into eleven provinces. For military purposes the country is divided as follows:

(a) For purposes of administration, recruitment and command of troops, into 3 military districts, to each of which there is one territorial infantry division.

(b) For purposes of national defense into three so-called "positions," which in turn are subdivided into 7 artillery and 4 engineer "positions." The first "position," or rather front (in case of war it is intended to defend Holland proper to the last, and its east, south, and west fronts are organized for defense) consists of the "Position of the new Dutch Water-line" and the "Position of Amsterdam," and faces east.

The second position is composed of the defenses of the Helder, the mouth of the Maas and Haringsvliet, and, being the sea front, is under the minister of the navy.

The third line is formed by the "Position of the Hollandisch Deep and Volkerak," and forms the southern line of defense.

The several artillery and engineer "positions" are charged with keeping up the fortifications, armament, means of inundation, etc., and are provided with numerous depots of stores so as to have all the requisite means immediately on hand on emergency.

The war establishment consists of the war ministry, the staff, the administrative department, the line, and auxiliary services.

VII.—WAR MINISTRY.

At the head of the department is the war minister, who is assisted by a secretary general and an adjutant.

The department is divided into 7 sections—secretariat, general staff, personnel, artillery, engineers, intendance, militia, and Schutterij.

1st section.—Secretariat: Deals with matters of public, administrative and private law, discipline, military justice, personnel of the civilian functionaries, budgets, and accounts.

2d section.—General staff: Is charged with the execution of decrees issued by the minister upon recommendation by (a) the chief of the general staff in matters of national defense, organization, dislocation, mobilization, maneuvers, encampments, movements of troops, and intelligence department; (b) the inspector general of infantry in matters of training, instruction, drill regulations, organization, and working of the normal school of musketry, the school battalion, the school of wards in the general disciplinary depot; (c) the inspector general of cavalry in matters of training, instruction, drill regulations, elementary instruction of the arm, and the farrier school; (d) the inspectors of cavalry and artillery in regard to casting of horses, improvement of the domestic breed of horses, remounts, remount depot, supply of horses, and instruction of civilian farriers, and (e) the inspectors and heads

of establishments in matters pertaining to the instruction at the war school, royal military academy, the principal and other courses of instruction of the corps, and examination of officers for appointment.

This section also deals with matters pertaining to the organization and service of the royal mounted police, the permanent military railway commission and regulations for military railway transport, garrison service, guard and barrack inventories, target ranges, drill grounds, execution of the law regarding the military instruction of the land forces, and the training of the militia.

3d section.—Personnel: Execution of ministerial decrees issued upon advice and recommendation of the inspectors of the three arms and heads of staff and departments, matters of personnel as appointment, promotion, nonactivity, dismissal, pensioning of officers, their detail and relief from detail, rewards, pensioning and discharge of persons below the grade of officer, of employees and workmen in the government establishments, cadre, rank, and promotion lists, pay and increase of pay, of officers, marks of honor and medals, civil employment of active and retired military persons.

4th section.—Artillery: Execution of ministerial decrees issued upon advice and recommendation of the inspector general of artillery in matters pertaining to training, instruction, drill regulations of the arm, scientific meetings and siege exercises on the map, service instructions, etc., organization and management of the artillery firing school, instruction company and instruction battery, armament and equipment of fortresses, technical artillery matters, procuring of new matériel, trials, matters affecting the artillery establishments; issue of artillery matériel to other departments of the general government; administration and maintenance of the artillery matériel in magazines and hands of troops, camps, town and garrison commanders, militia and military societies; accounts and contracts for artillery matériel.

5th section.—Engineers: Execution of ministerial decrees issued upon advice and recommendation of the inspector of that arm in matters pertaining to the personnel of the civilian engineers, watchmen of fortifications, and military watchmen; matériel of the engineers and engineer troops, service regulations, exercises in drill regulations, and camp instruction of engineer troops; construction, maintenance, and repair of barracks, quarters, magazines, and other military buildings; purchase of necessary drill grounds; construction, maintenance, and repair of fortifications and means of inundation, purchase of ground for these purposes, establishment of fortress rayons, permits for drainage canals and railways; accounts and contracts of engineer department.

6th section.—Intendance: Execution of ministerial decrees issued upon advice and recommendation of the inspector of the department and chiefs of the several arms, staffs, departments, etc., in matters pertaining to the subsistence of men and horses, clothing and equipment of the army and troops enlisted for the colonial army; military bakeries and slaughterhouses, depots of clothing, equipment, and bedding; fixing and maintaining supply of clothing, leather goods, horse equipments, bedding, camp and field equipments; medical treatment in the military infirmaries and outside of same; supplying fixed and temporary military hospitals with medicines, stores, and equipments, and maintaining same; subsistence in time of war in the field and in the fortresses; lists of horses, quartering of men and horses, transportation of troops, individual men and horses, baggage and other military goods; fuel and illuminating supplies and supply of drinking water; purchase, contracts, delivery, and accounting for provisions, forage, clothing, bedding, and saddlery; fixing price of clothing, etc.

7th section.—Militia and Schutterij: Militia national guard affairs except training; military societies; monthly returns; rolls of noncommissioned officers and men; passports, certificates of conduct, etc.

VIII.—THE STAFF.

In the staff are enumerated the following categories of officers: (1) The great staff; (2) the general staff; (3) the provincial staff, and (4) the local staff.

(1) The great staff consists of 5 aids-de-camp of the Queen; 4 adjutants of the Queen (budget of 1895); 3 major generals commanding the "Position of Amsterdam," the "Position of the New Dutch Waterline," and that of the "Hollandisch Deep and Volkerak," respectively, and 1 inspector of military instruction (major general).

(2) The general staff consists of 1 chief of the general staff, lieutenant or major general; 1 subchief of the general staff, major general or colonel; 2 colonels; 6 lieutenant colonels or majors, and 13 captains.

The chief of the general staff has attached to him one or more field officers and 2 or more captains of the general staff. He has under him the personnel of the general staff, he regulates their appointment and training, the composition of the staff of the field army, the organization of the national defense, etc. The general staff furnishes the chiefs of staffs and executive adjutants of the divisions of troops and of the "Positions" in which the country is divided; some are on duty in the war ministry, and one field officer has charge of the intelligence department, which is directly under the chief of the general staff, as is the topographical institution, which is presided over by a civilian functionary.

(3) The provincial staff consists of 1 adjutant, with the rank of lieutenant colonel or major, for each province except that of Drenthe. The budget for 1895 provides for 4 lieutenant colonels and 5 majors. The duties of these officers are in connection with militia and recruitment.

(4) The local staffs: This category consists (1895) of 1 colonel, 3 lieutenant colonels, and 1 major, as local commanders, and 11 captains and 7 lieutenants as local adjutants.

IX.—THE ADMINISTRATIVE DEPARTMENT.

The personnel of this department consists of (a) the intendance, (b) the quartermasters, (c) the magazine masters and directors of central depot of clothing and equipment, and (d) the clothing administration.

(a) *The intendance.*—The officers of this branch number 22 in all—1 chief with the rank of major general or colonel, 9 field officers (3 for the military districts, 3 for the infantry divisions, 1 director of the central clothing depot, 1 on duty at the war ministry, and 1 assistant to the chief intendant), and 12 captains on such duty as the war minister may assign them.

(b) *The quartermasters.*—These officers number 5 majors, 19 captains, and 79 lieutenants.

(c) *The magazine masters, etc.*—This class numbers 3 majors or captains.

(d) *The clothing administration.*—This class is composed of 6 captains and lieutenants.

X.—THE TROOPS.

The troops consist of the infantry, cavalry, artillery, and engineers.

XI.—THE INFANTRY.

The infantry consists of the staff of the infantry, 8 regiments of infantry, 1 regiment of grenadiers and chasseurs, and the instruction battalion (also the normal school of musketry

and the "Pupillenschool"). The staff of the infantry consists of 1 lieutenant general (inspector general of the arm), 3 major generals (commanding divisions), and 21 other officers of the general staff and attached for staff duty (including the normal school of musketry and "Pupillenschool").

In time of peace the infantry is divided into three territorial divisions, which consist of 3 infantry regiments of 5 battalions of 4 companies each. There is no brigade formation. The division staff consists of 1 major general (commanding division), 1 chief of staff (field officer of the general staff), 1 executive adjutant (captain of the general staff), 1 intendant with the rank of field officer, and 1 intendant with the rank of captain.

The regiment of grenadiers and chasseurs is composed of three battalions of grenadiers and 2 of chasseurs. The infantry regiments are composed of 5 battalions each. In time of war a depot battalion is formed in each regiment and one of the active battalions is detailed to service in the fortresses.

STRENGTH.—PEACE FOOTING.

The "organic strength" as given in the "Organisatiën," when the full quota of militia are present under arms, is as follows:

Strength of regiment, 110 officers and 4,691 men.

Strength of battalion, 20 officers and 932 men.

Strength of company, 4 officers and 231 men.

Strength of regimental staff, 10 officers and 37 men.

Strength of battalion staff, 4 officers and 8 men.

When the contingent alone is present the figures are as follows: Number of rank and file in regiment 1,267, in battalion 248, in company 60; the staffs probably remain the same (it is stated, however, in "Organisatiën" that of the 110 officers in the regiment not more than 20 may be militia lieutenants). Six officers and 4 rank and file of the regimental staff form the cadre for the formation of a depot battalion.

The instruction battalion consists of a staff and 4 companies. The total strength of the battalion is 30 officers and 624 men, that of the battalion staff 6 officers and 8 men; each of the 4 companies numbers 6 officers and 154 men. The disciplinary company numbers 6 officers and 25 men.

STRENGTH.—WAR FOOTING.

In time of war a depot battalion is organized in each regiment, and one of the battalions assigned to service in a fortress. The remaining four active battalions are the field battalions. The war strength is as follows:

Strength of the regiment, 102 officers and 4,571 men.

Strength of regimental staff, 2 officers and 27 men.

Strength of staff of field battalion, 5 officers and 10 men.

Strength of staff of fortress battalion, 3 officers and 6 men.

Strength of staff of depot battalion, 5 officers and 6 men.

Strength of the field battalion, 17 officers and 894 men.

Strength of the fortress battalion, 15 officers and 886 men.

Strength of the depot battalion, 17 officers and 82 men.

Strength of the field company, 3 officers and 221 men.

Strength of the fortress company, 3 officers and 220 men.

Strength of the depot company, 3 officers and 19 men.

XII.—THE CAVALRY.

The cavalry arm consists of the staff of the arm, 3 regiments of hussars, 1 squadron of orderlies, 1 farrier school and the Marechaussée and remount depot.

The staff of the cavalry consists of an inspector general with the rank of lieutenant or major general and his adjutant (captain).

Each hussar regiment consists of 5 squadrons and a depot squadron, and numbers 44 officers and 1,282 men when the furloughed men are present, the field squadron 5 officers and 223 men, and the depot squadron 5 officers and 125 men. When the furloughed men are not present the regiment numbers 780 men with the colors, the field squadron 131 men.

The squadron of orderlies numbers 5 officers and 133 men and 120 horses.

The farrier school consists of 4 officers and 9 men.

The "Marechaussée" (or Royal Gendarmerie), although not performing military duty in time of peace, is nevertheless officered and organized in a military manner, as is the case in most European countries to-day. This body of men is organized in 4 divisions as follows:

	Officers.	MEN.		HORSES.	
		Mounted.	Dismounted.	Officers.	Men.
First Division	6	97	128	12	96
Second Division	4	117	54	8	117
Third Division	4	132	3	8	132
Fourth Division	3	167	3	6	167
Total	17	513	188	34	512

STRENGTH.—WAR FOOTING.

The regiment consists of 45 officers and 730 rank and file, with 81 officers' horses and 644 troop horses.

The regimental staff numbers 11 officers, 33 men, 16 officers' horses, and 29 troop horses.

The field squadron numbers 5 officers, 131 men, 10 officers' horses, and 123 troop horses.

The depot squadron numbers 9 officers, 42 men, and 15 officers' horses. The number of troop horses is not fixed.

XIII.—THE ARTILLERY.

The artillery arm of the service consists of (a) the staff of that arm, (b) 3 regiments of field artillery, (c) the corps of horse artillery, (d) 4 regiments of fortress artillery, (e) the "pantserfort" artillery corps, (f) the instruction company, (g) the pontonier corps, (h) the torpedo corps, and (i) the company of workmen.

(a) THE ARTILLERY STAFF.

The artillery staff is composed as follows: Inspector general of artillery (lieutenant or major general), 1, and staff of one field officer and one captain, 2; commander of field artillery (major general or colonel), 1, and staff, 3; president of remount commission (field officer), 1; commander of fortress artillery (major general or colonel), 1, and staff, 4; artillery firing school, 7; on duty in the war ministry, 4; director of artillery establishments (colonel), 1, and staff, 2; captain of matériel, 1; chief of the testing committee (captain), 1; magazine

staffs (1 field officer and 3 subalterns), 4; staff of workshops, 8; staff of pyrotechnic shop, 5; staff of small-arms factory, 4; staff of gun foundry, 3; experimental committee, 5; and storekeepers of various grades, 16—making a total of 74.

(b) THE FIELD ARTILLERY.

The field artillery consists of 3 regiments of two divisions of 4 and 2 batteries respectively and 2 train companies. The battery carries 6 guns of 80-mm. caliber.

Including the furloughed classes, the regiment numbers 49 officers, 1,374 men, 47 officers' horses, and 514 troop horses.

The staff of the regiment consists of 7 officers, 22 men, 7 officers' horses, and 4 troop horses.

The staff of a division consists of 5 officers, 4 men, and 4 officers' horses.

The battery consists of 4 officers, 161 men, 4 officers' horses, and 70 troop horses.

The train company consists of 4 officers, 189 men, 4 officers' horses, and 45 troop horses.

When the furloughed classes are not present, the regiment consists of 49 officers and 555 rank and file, the battery of 4 officers and 65 rank and file.

(c) THE CORPS OF HORSE ARTILLERY.

Including the men on furlough, the corps consists of a staff of 6 officers, 13 men, 7 officers' horses, and 1 troop horse; the battery of 4 officers, 180 men, 8 officers' horses, and 127 troop horses. There are two batteries in the corps. The instruction battery is also included in the horse artillery corps, with a strength of 2 officers, 160 men, 4 officers' horses, and 58 troop horses, giving a total strength of 16 officers, 533 men, 27 officers' horses, and 313 troop horses. When the furloughed men are not present, the horse battery numbers 4 officers and 65 rank and file.

STRENGTH.—WAR FOOTING.

The staff of the corps of horse artillery consists of 4 officers, 11 enlisted men, 6 officers' horses, and 8 troop horses.

The horse battery consists of 4 officers, 166 men, 8 officers' horses, and 180 troop horses.

The depot consists of 4 officers, 12 men, 6 officers' horses, and a number of troop horses not fixed. The entire corps numbers 16 officers, 355 men, 28 officers' horses, and 368 troop horses.

The field artillery, horse artillery, and instruction battery are under the commander of the field artillery.

(d) THE FORTRESS ARTILLERY.

There are 4 regiments of fortress artillery of 10 companies each. The number of men and officers is not the same in these regiments, but the difference is so slight that it may be left out of consideration. Including the furloughed classes the regiment consists of 54 officers and 1,845 men, the regimental staff 14 officers and 15 men, and the company 4 officers and 183 men. Under ordinary circumstances, however (when the furloughed classes are not under the colors), the regiment numbers but 423 rank and file and the battery 42 rank and file.

The "pantserfort"* companies, of which there are 4, number 4 officers and 50 rank and file; including all classes the organization calls for 180 rank and file for the 1st, 2d, and 3d companies and 183 rank and file for the 4th company. The staff of the corps of pantserfort artillery numbers 3 officers, 2 men, and the entire organization 19 officers and 725 men.

* "Pantserfort": Fort protected by armor, or provided with turrets or cupolas.

The torpedo corps consists of 2 companies of the following strength, all classes included: Staff, 4 officers and 8 men; each company, 4 officers and 219 men; total for the corps, 12 officers and 446 men. It is not known how many men are present with the colors under ordinary circumstances.

STRENGTH.—WAR FOOTING.

On the war footing the strength of the fortress artillery regiment is as follows: Staff, 6 officers and 3 men; company, 4 officers and 169 men; depot company (on a war footing the regiment consists of 10 companies and a depot company), 4 officers and 34 men; the entire regiment, 51 officers and 1,727 men.

The war strength of the corps of pantsersfort artillery is as follows: Staff, 2 officers and 1 man; the 1st, 2d, and 3d companies, 5 officers and 180 men each; the 4th company, 5 officers and 183 men; total for the corps, 22 officers and 727 men.

The war strength of the torpedo corps is as follows: Staff, 2 officers and 8 men; each company, 6 officers and 229 men; total corps, 14 officers and 466 men.

(e) THE CORPS OF PANTSERFORT ARTILLERY. (See Fortress Artillery.)

(f) THE INSTRUCTION COMPANY. (See Field Artillery.)

(g) THE PONTONIER CORPS.

The corps of pontoniers consists of a staff and 2 companies, the first company being a "rolling" or field company, the second a "floating" and permanent bridge company. In time of peace the pontoniers form part of the fortress artillery; in time of war the first company is attached to the field army, the second to the fortress troops.

STRENGTH.—PEACE FOOTING.

The staff numbers 6 officers and 3 men, each company 4 officers and 260 men, the entire corps 14 officers and 523 men, when all classes are present with the colors. The ordinary strength is 14 officers and 250 men.

STRENGTH.—WAR FOOTING.

On a war footing the staff numbers 2 officers, 1 man, and 2 officers' horses. The rolling company numbers 7 officers and 454 men, 10 officers' horses and 303 (riding and draft) horses, and 51 vehicles. The floating and permanent bridge company numbers 5 officers and 378 men, the depot 3 officers and 9 men, making a total for the corps of 17 officers, 842 men, 12 officers' horses, 303 troop horses, and 51 vehicles.

(h) THE TORPEDO CORPS. (See Fortress Artillery.)

XIV.—THE ENGINEERS.

This branch of the service consists of the staff and the corps of engineer troops. The staff consists of 1 lieutenant or major general as inspector general of the arm, 1 adjutant of inspector, 2 colonels, 4 lieutenant colonels, 3 majors, 23 captains, 25 subalterns, 1 field officer in the war ministry, and 2 captains in the war ministry, making a total of 62; also 45 non-commissioned officers (in charge of fortifications).

The corps of engineer troops consists of the staff and 9 companies (3 field, 4 fortress, 1 railway and telegraph, 1 school and depot company). The staff consists of 6 officers and 22 men, each field company of 3 officers and 159 men, each fortress company of 3 officers and 166 men,

the railway and telegraph company of 6 officers and 199 men, the school and depot company of 3 officers and 208 men; total for the corps, 36 officers and 1,570 men. The ordinary strength is as follows: Staff, 6 officers and 22 men; each field company, 3 officers and 69 men; each fortress company, 3 officers and 76 men; the telegraph and railway company, 6 officers and 109 men; the depot and school company, 3 officers and 53 men; total strength of corps, 36 officers and 697 men.

WAR FOOTING.

On a war footing the regiment numbers 28 officers and 1,629 men, 10 officers, and 161 troop horses, and 44 vehicles.

The staff numbers 3 officers and 2 men, 3 officers' horses, 2 troop horses, and 1 vehicle.

The field company numbers 3 officers, 167 men, 1 officers' horse, 12 troop horses, and 5 vehicles.

The fortress company numbers 1 officer and 201 men (the number of subalterns is not fixed).

The railway and telegraph company forms a railway section of 3 officers, 136 men, 32 troop horses, and 7 vehicles, and 4 telegraph sections (1 to headquarters, 1 to each division in the field) of together 4 officers, 160 men, 4 officers' horses, 91 troop horses, and 21 vehicles, making a total for the company of 7 officers, 296 men, 4 officers' horses, 123 troop horses, and 28 vehicles.

The depot company numbers 5 officers and 26 noncommissioned officers (the number of privates is not fixed.)

XV.—PONTONIER TROOPS. (See Fortress Artillery.)

XVI.—TRAIN TROOPS. (See Fortress Artillery.)

XVII.—RAILWAY TROOPS. (See Engineer Troops.)

XVIII.—TELEGRAPH TROOPS. (See Engineer Troops.)

XIX.—MEDICAL DEPARTMENT.

The medical department consists of the inspector general with his bureau, the corps of medical and veterinary officers, 3 companies of hospital troops, and the medical establishments.

The department is under an inspector general, whose bureau numbers 9 persons, himself included—1 medical director, 1 chief clerk, 1 military pharmacist, 1 veterinary director, 1 clerk, and 3 other persons.

The corps of medical and veterinary officers consists of 1 major general (inspector general), 3 colonels (medical directors of military districts), 15 lieutenant colonels and majors (directors of medical establishments in large garrisons), 92 captains and first lieutenants, 140 captains and first lieutenants as reserve medical officers, 1 field officer (chief apothecary), 28 captains and lieutenants (military apothecaries), number of reserve apothecaries not fixed, 30 military apothecaries (noncommissioned officers), 1 field officer (chief veterinarian), and 22 captains and subalterns (veterinarians).

Each hospital company consists of 1 first lieutenant and 231 men.

The medical establishments consist of military hospitals and military sick wards. The hospitals are subdivided into 3 of the first class, 7 of the second class, and 18 of the third class. The sick wards are 22 in number.

XX.—TOTAL PEACE STRENGTH.

The total peace strength of the army is 21,500 men.

XXI.—TOTAL WAR STRENGTH.

The total war strength of the army is as follows:

	Officers.	Men.
Active army reenforced by furloughed classes.....	1,583	68,000
Active Schutterij	851	50,540
Reserve of Schutterij.....	1,329	77,070
Total.....	3,763	196,070

B.—THE DUTCH EAST INDIAN ARMY.

In addition to the Home Army the Netherlands possess two colonial armies, the East Indian and the West Indian armies.

I.—AREA AND POPULATION.

The area of the Dutch East Indian colonies is about 584,611 square miles with about 32 000,000 inhabitants.

II.—COMMAND.

The colonies are governed by a governor general who appoints, promotes, and discharges officers and men, and issues orders and warrants to the East Indian Army the same as does the King to the Home Army.

At the head of the military establishment is a lieutenant general who is at the same time commander in chief and minister of war.

III.—THE WAR MINISTRY.

The war ministry is divided into seven sections as follows:

1st section: Cabinet, personnel, cavalry, military affairs.

2d section: Central bureau for infantry and school of musketry.

3d section: Artillery and artillery staff, troops, depots, and shops.

4th section: Engineers and staff, engineer troops and workmen, engineer depots.

5th section: Military administration, intendance of the districts, administration of the several corps, hospitals, etc.

6th section: Medical and veterinary service.

7th section: General Staff.

IV.—THE GENERAL STAFF.

The chief of the corps is a major general or colonel; the topographical and provincial services are directly subordinated to him. The officers of the general staff, whose present number is not known, are employed in section 7 of the war ministry, in the topographical bureau, and on the district staffs.

VI.—TERRITORIAL SUBDIVISION.

For purposes of command the East Indian colonies are divided as follows: Java is divided into three military districts, all the other colonial possessions into twelve military commands, all of which, like the military districts, are directly subordinated to the commander in chief.

VI.—AVAILABLE STRENGTH.

The total strength of the East Indian Army is about 1,400 officers and 34,000 men. With a few exceptions the officers are of European descent, while one-half of the rank and file are natives, partly christians, partly heathens.

VII.—THE INFANTRY.

The infantry is organized as a department of a fixed total strength, and tactical details are arranged as prompted by circumstances, so that the organizations are not necessarily of the same strength or composition.

The infantry force numbers 18 field battalions, 4 depot battalions, and 10 garrison battalions.

(a) *The field battalions.*—These battalions are commanded by field officers (four by lieutenant colonels, the others by majors). The battalion staff consists of 1 field officer, 1 adjutant and 8 men.

One of the battalions consists of 4 companies of Europeans, the company being composed of 1 captain, 3 lieutenants, and 150 men.

Three of the battalions consist of 2 companies of Europeans and 2 companies of Amboinese and native christians; in these latter companies there are 4 sergeants, 6 corporals, and 113 fusiliers, native Amboinese; the balance of the company staff consists of Europeans as in the European companies.

Four of the battalions consist of 2 European companies and 2 companies of natives (heathens). Their composition is like that of the Amboinese company except that there are 106 privates.

Ten of the battalions consist of 1 European and 3 native companies each.

(b) *The depot battalions.*—The object of these battalions is to furnish men to the field and garrison battalions, the strong men being preferably assigned to the field battalions, those less strong to the garrison battalions. There are four depot battalions in all, the first two of which are composed of 5 companies, the third of 4 companies, and the fourth of 2 companies. Each battalion serves as a reserve for the troops stationed within its region from which to keep the ranks filled up. When a field battalion is ordered into the field, it transfers its infirm to the depot and fills up its ranks from that source.

The men held at the depots are divided into three categories. The first category consists of men who have been drilled, but have not served in a field battalion. The second category consists of men who are instructed and ready for the field. The third category consists of men who are not strong enough for the field but do well enough for the garrison battalion.

The depot battalions are composed of the following companies: First depot battalion, 3 European and 2 native companies; second depot battalion, 3 European, 1 Amboinese, and 1 native company; third depot battalion, 2 European and 2 native companies; fourth depot battalion, 1 European and 1 native company.

The staff of the depot battalions and companies is the same as that of the field battalions, except that the depot companies have four lieutenants instead of three.

(c) *The garrison battalions* are ten in number, the number of companies varying with circumstances. On December 31, 1892, the infantry numbered 18 field battalions, 11,642 men; 4 depot battalions, 4,282 men; garrison infantry, 10,287; en route, 325; total, 26,536 men, of the following nationalities: Europeans, 9,653; Africans, 49; Amboinese, 2,132; and natives, 14,702.

VIII.—THE CAVALRY.

There is 1 regiment of cavalry of 4 squadrons, a depot squadron, and a detachment at Makassar. The regiment is commanded by a colonel or lieutenant colonel; the regimental staff numbers 4 officers and 5 rank and file. The normal formation of the regiment calls for 7 captains, 11 first lieutenants, 10 second lieutenants, and 7 “*maréchaux des logis-chef*.” The European effective comprises 42 sergeants, 57 corporals, 10 trumpeters, 4 farriers, 3 saddlers, 44 privates of the first and 263 of the second class. The native effective comprises 13 sergeants, 35 corporals, 11 trumpeters, 2 farriers, 3 saddlers, 47 privates of the first and 290 of the second class.

The total effective on December 31, 1892, was 435 Europeans, 2 Amboinese, 395 natives, and 645 horses.

IX.—THE ARTILLERY.

The artillery consists of the artillery staff and the artillery troops and establishments.

(a) The staff has under its direct orders the central office of the arm, the provincial artillery commands, the small-arms inspection, and the presidents of the small-arms and supply commissions.

(b) The artillery troops are divided into field and mountain artillery of Java, fortress artillery of Java, and artillery outside of Java.

The field and mountain artillery of Java consists, each, of 4 batteries, all being under the command of a lieutenant colonel. The staff of this portion of the arm consists of 2 officers and 9 rank and file. The field battery consists of 5 officers and 242 rank and file, the mountain battery of 3 officers and 155 rank and file.

The fortress artillery of Java consists of 7 companies of 4 officers and 99 men each.

The artillery outside of Java consists of 8 companies.

The personnel of the artillery establishments comprised on December 31, 1892, 20 officers and 384 rank and file (comprising the artillery depot guards, artillery conductors, personnel of powder mills, the artillery and pyrotechnical shops, armorers' school, and armorers' shops).

STRENGTH.

Field and mountain artillery of Java 1,105 men and 478 horses.

Fortress artillery of Java, 726 men.

Artillery outside of Java 892 men and 68 horses.

X.—THE ENGINEERS.

This corps consists of the staff of the corps, the engineer troops and workmen, and the engineer depots.

The number of officers in the engineer staff is not given.

The troops are commanded by a major with a staff of 1 officer and 4 rank and file. The two companies comprise—of Europeans, 2 captains, 8 lieutenants, and 151 rank and file; of natives, 150 rank and file.

The corps of workmen consists of 293 rank and file.

XI.—THE ADMINISTRATIVE SERVICES.

These branches comprise 369 officers and 2,128 rank and file, inclusive of the medical service.

C.—THE DUTCH WEST INDIAN ARMY.

The following is taken from the "Armed Strength of the Netherlands and their Colonies":

In 1884 the forces in Surinam consisted of regulars, 20 officers and 397 men; Schutterij, 26 officers and 467 men; armed burghers, 66 officers and 1,510 men; total, 112 officers and 2,374 men. The total forces at Curaçao numbered, regulars, 9 officers and 212 men; Schutterij, 15 officers and 452 men; total, 24 officers and 662 men.

ITALY.

I.—AREA AND POPULATION.

The Kingdom of Italy has an area of 287,000 square kilometers, with an estimated population of 30,724,897, or 107 per square kilometer.

II.—AVAILABLE STRENGTH.

The registered number of young men who have attained the age at which they are available for military service was, in 1893, 293,812. There are, however, certain exemptions and excuses after conscription, which consist of physical or intellectual incapacity or defective stature. After all exemptions have been made, the number of men remaining for assignment to the active army will average 100,000 (100,617 in 1894). The class of 1873, examined in 1893, was called out in the spring of 1894, an exception being made for 20,000 men, who, by the terms of a recent law, were allowed to remain on unlimited leave, at the disposal of the minister, until the joining of the next class. Allowing for men of this contingent who were already in service (officers, cadets, and volunteers), the number of men actually assigned to corps and regiments was only 73,447, making a total contingent, with the colors, of 177,429. The average strength of the army is fixed by law, and amounted in the year 1894-95 to 205,126 men, which was about 54,000 less than the organic strength. Savings are made by deferring the calling out of the annual contingent for one or more months, by postponing some classes of the contingent a whole year, and by sending men on unlimited leave before the actual expiration of their time of service with the colors.

III.—CONDITIONS OF SERVICE.

With the exception of certain classes of criminals, who are excluded from the army and navy, liability to military service is universal, and lasts 19 years. The military forces of the kingdom include the permanent army, the "mobile militia," and the territorial militia. Young men who reach the age of 20 in any particular calendar year form a class called by the name of the year of their birth.

After eliminating the men who are unfit for military service, the remainder of the class is divided into two categories (formerly three). In the third category are placed the men who for various reasons (support of family, brother already in service, or brother killed in service) are exempted from serving in the permanent army. This class is immediately enrolled in the territorial militia. By the terms of the law of April 10, 1892, the first category now includes all men of the class who are not enrolled in the third category. The second category has thus disappeared. The men of the first category form the annual contingent. It should be mentioned that one brother may be accepted as a substitute for another, but no other substitutions are allowed.

Ordinarily, service in the permanent army lasts 2 or 3 years (4 years in the cavalry*). The men are then sent on unlimited leave until the 15th of December of their 13th year of service. The first or youngest six classes on unlimited leave constitute the reserve of the permanent army. The other four classes form the mobile militia. Every year one or more classes of the reserve and mobile militia are called out for training of not to exceed 30 days.

After completion of their service in the mobile militia the men are passed to the territorial militia, where they remain until the 31st of December of the year when they reach the age of 39. Cavalry reservists pass directly to the territorial militia, consequently there are no cavalry units in the mobile militia.

The trainings in the territorial militia are at the rate of 30 days every four years, distributed over 2, 3, or 4 years.

Volunteers.—Conscription may be anticipated by volunteering. There are various categories of volunteers—ordinary volunteers, one-year volunteers, and volunteers to serve during a war.

Youths of 18 are allowed to volunteer provided they know how to read and write, have the consent of their parents, and fulfill certain physical, moral, and legal requirements. The time of active service is 4 years in the cavalry and 3 years in the other arms of the service.

Youths of 17 who fulfill the various requirements for ordinary volunteers are allowed the privilege of volunteering for one year, provided that they have gone through at least one year's volunteer target practice; that they can pass certain examinations prescribed by the minister of war, and that they can pay a premium to be fixed by the minister of war, not exceeding 2,000 francs.

Youths of not less than 18 are allowed to volunteer for the duration of a war. The same privilege is allowed to men of the third category belonging to classes on unlimited leave.

IV.—MILITARY EXPENDITURE.

The annual war budget amounts to, in round numbers, \$45,000,000 (year ending June 30, 1896).

V.—THE COMMAND AND STAFF OF THE ARMY.

The fundamental law of the Kingdom of Italy declares that the King is the commander in chief of the land and naval forces, and that he appoints to all the offices of the state. The laws and other acts of the government have no force, however, unless they are signed by a minister. The ministers are alone responsible. As a result of these provisions, the minister of war is the responsible head of the army.

THE WAR MINISTRY.

Directly under the war minister comes the ministry of war, which is divided into a general secretariat, under the subsecretary of state for war, and five general directions. The general secretariat and the general directions are divided as follows (*Giornale Militare Ufficiale*, 1895, p. 747):

General secretariat: Cabinet of the minister; staff division; division of personnel of the ministry, of interior service, pensions, and subsidies; division of justice, military schools, sanitary and veterinary personnel, and veterinary inspection office.

*For the class of 1875 the law fixes the duration of service in the cavalry at 3 years.—(*Giornale Militare Ufficiale*, Atto No. 160, 1895.)

General direction of infantry and cavalry: Office for general business; infantry division, and cavalry division.

General direction of artillery and engineers: Office for general business; office for personnel; artillery division, and engineer division.

General direction of administrative services: Office for general business; division of pay and allowances and military chests; subsistence division; clothing division; quarters and transportation division, and division for administrative and accountant personnel.

General direction for recruiting and troops (direzione generale leve e truppe): Office for general business; conscription division; division for troops; division for rolls and musters, and reenlistment division.

General direction of the revision of accounts: Office for general business; accounting division (divisione egioneria); division of accounts for pay and allowances; and division of accounts for matériel.

Each division consists of 2 or more sections. The offices for general business are under charge of subsecretaries, who are directly subordinate to the director general. The veterinary inspection office is under charge of a veterinary colonel. The chief of the staff division (general secretariat) is usually a colonel of the general staff.

THE STAFF.

The staffs of the Italian Army may be divided into (1) the general staff, (2) the staff corps, and (3) the orderly officers and aids-de-camp of general officers.

(1) **THE GENERAL STAFF** (*stato maggiore generale*) consists of the whole list of general officers of the army. It comprises three grades—major general (*maggiore generale*), corresponding to our brigadier general; lieutenant general (*tenente generale*), corresponding to our major general, or division commander; and general of the army (*generale d'esercito*), corresponding to our lieutenant general. It also includes the officers of administrative corps with grades assimilated to those of the combatant officers, such as surgeon major general, commissary major general (no further appointments will be made to this grade), and officers of the rank of colonel who are acting as brigadiers, such as colonel brigadiers (employed as major generals) and medical inspector colonels (employed as surgeon major generals).

In time of peace no promotions to the grade of general of the army are made.

(2) **THE STAFF CORPS.**—This consists of (a) the headquarters of the staff corps; (b) the officers of the staff corps; (c) the attached officers of the staff, and (d) the geographical military institute. In addition, there are a number of officers detached (*comandati*) from their units for duty with the staff, who are not considered as properly forming an integral section or branch of the staff.

(a) *The headquarters of the staff corps (comando del corpo di stato maggiore).*—This is composed of a commander of the staff corps, who has the title of chief of staff of the army, and who is a general or lieutenant general; of a second in command, who is a lieutenant general, and of an attached general officer, who is a lieutenant general or major general.

The relations of the chief of staff to the war minister are peculiar. The chief of staff and the headquarters of the staff corps form no part of the war ministry, but are independent of that body, and directly subordinate to the minister. Under the chief of staff are pursued in time of peace, the studies for the preparation for war. The division of the general secretariat of the war ministry, called the staff division, may be looked upon as the

channel of communication between the chief of staff and the minister himself. The chief of staff of the army becomes, in time of war, the chief of staff of the generalissimo or commander in chief.

(b) *The officers of the staff corps.*—These officers are employed in the headquarters of the staff corps and in the geographical institute; in the offices and divisions of the war ministry; with the staffs of corps and divisions; in the military schools and in the war school particularly; some are on duty as military attachés or as aids-de-camp.

The lowest grade in the staff corps is that of captain; the highest, that of colonel. These officers are drawn from the list of those that have passed successfully through the war school, and through the experimental course (*corso d'esperimento*) for admission to the staff corps.

Majors of the staff are promoted either directly from captains of the staff or from the majors of infantry or cavalry who have served as captains of the staff. Majors of the staff become lieutenant colonels in the staff by length of service. Lieutenant colonels of the staff corps are promoted to be colonels of infantry or cavalry, or in the staff itself. The effect of these rules is to cause a constant interchange of officers between the staff and line.

(c) *The attached officers of the staff (ufficiali applicati di stato maggiore).*—These are a class of officers, the number of whom is fixed, and who are performing duties of a sedentary nature in the staff. They are placed "fuori quadro" (or are seconded) in their regiments. These officers are never admitted to the cadres of the staff corps and are not in general graduates of the war school. Their detail is limited to four years and they can not remain longer detached unless they renounce promotion. This class furnishes employment for a number of officers who are unable to perform duty with troops.

(d) *The military geographical institute.*—This establishment is employed in geodetic and topographical work, and in compiling, reproducing, and reissuing all maps which may be necessary for the operations of armies in the field or for military studies.

Finally, the officers who are "comandati" or detached for duty with the staff comprise officers of all ranks and corps, who, for any particular reason, are doing temporary duty with the staff. These officers may be sent back to their regiments at any time, as soon as their special duty, studies, or functions cease.

(3) **THE ORDERLY OFFICERS AND AIDS-DE-CAMP.**—The royal princes, the minister of war, the chief of staff of the army, the commanders of army corps and of territorial divisions, and the command of the Island of Sardinia have each one or two "ufficiali d'ordenanza" or orderly officers, who are attached to the persons of their chiefs and correspond pretty closely to our personal aids-de-camp. They are taken from the lieutenants of infantry or cavalry who have served not less than two years with their regiments. Orderly officers may remain on this duty in general not longer than two years.

To each brigade of infantry or cavalry is assigned an "aiutante di campo," which is usually translated aid-de-camp, but as that designation applies more closely to the "ufficiali d'ordenanza," it is necessary to state that the "aiutante di campo" has functions more nearly those of a military secretary or assistant adjutant general. The term "military secretary" will then be used as an equivalent for the Italian expression.

Officers with the titles of "aiutante di campo" or "aiutante di campo generale" also appear in the military households of the King and royal princes. These functionaries also have a large number of honorary officers who bear these titles.

Military secretaries are usually chosen from the captains of infantry or cavalry who have passed through the war school and who have held a command appropriate to their

grade for at least a year. They are attached to the headquarters rather than to the persons of their chiefs and do not change with their chiefs. Their details are limited to four years.

INSPECTORATES.

The inspectorates of the various arms, and the officers attached to them, are not considered as staffs in the Italian army, though they correspond pretty closely to what are called special staffs of the various arms in some other European countries, notably France. The inspectors, who are placed at the head of these inspectorates, are generally officers of the general staff (*stato maggiore generale*), and they usually belong to or come from the arm over which they are placed. They are not under the war ministry in any way, but are only subordinate to the minister himself.

These inspectorates are as follows: Inspectorate of the "Alpini;" inspectorate of cavalry; inspectorate of field artillery; inspectorate of fortress artillery; inspectorate of artillery constructions; inspectorate of the arms and matériel of the corps; inspectorate of engineer troops; inspectorate of engineer constructions, and military medical inspectorate.

VI.—ORGANIZATION.

(a) GENERAL.

The Italian army is organized into 12 army corps.

(b) THE ARMY CORPS.—PEACE FOOTING.

In time of peace the army corps is a territorial organization, and consists, normally, of 4 brigades of infantry; the other arms are distributed without uniformity in the corps district, where they are grouped in brigades, commands, divisions, etc., of variable importance, which do not correspond numerically to the territorial division of the army corps.

(c) THE ARMY CORPS.—WAR FOOTING.

The normal war organization of the army corps calls for 2 divisions of infantry, 1 regiment of bersaglieri (rifles), 1 regiment of cavalry, 2 brigades of 4 batteries (regiment of corps artillery), the parks, personnel and matériel of the sanitary and administration service, and the gendarmerie. In case of necessity the corps contains 3 infantry divisions, the auxiliary services and other units, however, remaining the same as in a corps of two divisions.

VII.—THE DIVISION.

(a) GENERAL.

There are 24 divisions (two to each army corps district) which, like the army corps, are in time of peace territorial units, and which in the first six army corps (Po Valley) consist of 2 infantry brigades, and from 1 to 4 brigades in the other corps.

(b) THE DIVISION.—WAR FOOTING.

The division consists of 2 brigades of infantry of 2 regiments each, 1 brigade of 4 batteries of field artillery, 1 company of sappers (engineer troops), the parks, 1 bridge section, the personnel and matériel of the sanitary and administrative services and the gendarmerie.

VIII.—THE INFANTRY.

(a) GENERAL.

There are 94 regiments of infantry of the line of a depot and 3 battalions of 4 companies each, 2 regiments of grenadiers of a depot and 3 battalions of 4 companies each, 12 regiments of bersaglieri of a depot and 3 battalions of 4 companies each, or 108 regiments or 324 battalions; besides 22 Alpine battalions grouped in 7 regiments; in all 115 regiments or 346 battalions.

(b) STRENGTH.—PEACE FOOTING.

The line regiment consists of 63 officers and 1,263 rank and file. The battalion consists of 17 officers and 405 rank and file.

The rifle regiment consists of 62 officers and 1,235 rank and file. The company consists of 3 or 4 officers and 100 rank and file.

(c) STRENGTH.—WAR FOOTING.

The regiment consists of 77 officers and 3,116 rank and file. The battalion consists of 24 officers and 1,019 rank and file.

IX.—THE CAVALRY.

(a) GENERAL.

The cavalry consists of 24 regiments, which in time of peace are grouped in 9 brigades of from 2 to 4 regiments, subordinate to the commanders of the corps and divisions in whose districts they may be stationed, and to the inspector general of cavalry. In time of war the 12 regiments not attached to army corps form 3 independent divisions, apparently 1 for each army.

The regiment consists of 2 half regiments of 3 squadrons each and a depot. On mobilization for war the depot is increased in strength by transfers from the field squadrons and men recalled from leave, and forms, in addition to the depot proper, a reserve squadron of the same strength as the field squadrons. The squadrons thus take the field weaker in men, but stronger in officers than they are in the time of peace.

An independent division should consist of 2 brigades of 2 regiments each, one brigade of artillery of 2 horse batteries, and the auxiliary services.

(b) REGIMENTS AND SQUADRONS.

There are 10 regiments of lancers (heavy) and 14 regiments of light horse, all of 2 half regiments of 3 squadrons each; in all, 24 regiments or 144 squadrons.

(c) STRENGTH.—PEACE FOOTING.

The regiment—staff, 6 squadrons, and depot—consists of 45 officers and 1,073 rank and file. The squadron consists of 4 officers and 165 rank and file.

(d) STRENGTH.—WAR FOOTING.

The regiment consists of 44 officers and 854 rank and file. The squadron consists of 5 officers and 134 rank and file.

X.—THE FIELD ARTILLERY.**(a) GENERAL.**

The field artillery proper is formed of 24 regiments, distributed in 4 commands of unequal importance. They are subordinate to the territorial artillery commanders (major generals), to the commanders of the corps in whose districts they are located, and to the inspector general of field artillery.

The field artillery comprises 24 field regiments, 1 horse artillery regiment, and 1 mountain artillery regiment.

The field artillery regiments were formerly classed as divisional and corps regiments. The differences were trifling, except that the corps regiments had two train companies, while the divisional regiments had only one. There were 2 brigades of 4 batteries to each regiment, and a regimental depot, making a total of 192 batteries, 36 train companies, and 24 depots. The reorganization of the artillery promulgated in December, 1894, went into effect the 1st of March, 1895. The number of regiments remained the same, but the number of field batteries was reduced to 186, the number of mountain batteries being increased by 6. Seven of the old corps regiments were reduced to 7 batteries, divided into two brigades, one of 4 batteries, and one of 3. The field artillery now stands as follows:

Six regiments (formerly corps regiments), each consisting of a staff, 8 batteries, 2 train companies, and a depot.

Six regiments (formerly corps regiments), each consisting of a staff, 7 batteries, 2 train companies, and a depot.

Twelve regiments (formerly divisional regiments), each consisting of a staff, 8 batteries, 1 train company, and a depot.

In addition, the reorganization decree provides that such other batteries of the field artillery regiments as may be designated as mountain batteries, will receive the organization and equipment prescribed for a mountain battery. Such batteries still technically belong to the field artillery, but really must be deducted from the strength of that arm.

Accordingly, one battery of the 22d regiment (one of the old divisional regiments) has been designated to be manned and equipped as a mountain battery. The number of field batteries has thus been actually reduced to 185.

The horse artillery regiment consists of 3 brigades of 2 batteries each, 1 train brigade (4 companies), and a depot.

On a war footing the first 12 regiments will, it is probable, still be attached to the 12 army corps; the remainder (12 regiments) will furnish to each division of infantry one brigade of 4 batteries.

In the horse artillery the batteries, grouped by twos, constitute the brigades to be attached to the cavalry divisions.

The mountain artillery regiment consists of 5 brigades of 3 batteries each, and a depot.

(b) ARMAMENT.

Field batteries are armed with 70 and 90 mm. guns.

The horse and mountain batteries are armed with 70-mm. guns.

These guns are of hard (compressed) bronze.

(c) STRENGTH.—PEACE FOOTING.

The field artillery regiment of 8 batteries and 2 train companies, etc., consists of 53 officers and 997 rank and file.

The horse artillery regiment consists of 58 officers and 1,165 rank and file.

The mountain artillery regiment consists of 87 officers and 2,218 rank and file.

The field battery consists of 3 officers and 90 rank and file.

The horse battery consists of 4 officers and 120 rank and file.

The mountain battery consists of 4 officers and 140 rank and file.

(d) STRENGTH.—WAR FOOTING.

The brigade of field artillery (4 batteries), 90-mm. guns, consists of 20 officers and 658 rank and file.

The brigade of field artillery (4 batteries), 70-mm. guns, consists of 20 officers and 506 rank and file.

The brigade of horse artillery consists of 12 officers and 312 rank and file.

The field battery of six 90-mm. guns, consists of 4 officers and 162 rank and file.

The field battery of six 70-mm. guns, consists of 4 officers and 124 rank and file.

The horse battery consists of 4 officers, 150 rank and file, and 6 guns.

The mountain battery consists of 6 officers, 280 rank and file (including an ammunition column and a park section), and 6 guns.

XI.—THE FORTRESS ARTILLERY.

(a) GENERAL.

The 5 regiments of this arm (2 coast and 3 garrison regiments) were, in March, 1895, reorganized into 11 coast brigades and 11 fortress brigades, having from 2 to 5 companies each. The total number of companies is 76. The division into 5 regiments, however, is still provisionally retained.

These brigades are distributed in 12 local commands of artillery and are subordinate to the local artillery commanders, to the commanders of corps and divisions in whose districts they may be stationed, and to the inspector of fortress artillery.

The fortress artillery furnishes in time of war: (1) one brigade for each field army, (2) the garrison artillery required for siege parks, (3) the garrison artillery required for fortresses or fortified positions in the theater of operations, (4) the garrison artillery required for the service of coast batteries, and (5) detachments of skilled workmen and artificers attached to the artillery parks of an army.

(b) STRENGTH.—PEACE FOOTING.

The company consists of 3 officers and 110 rank and file.

(c) STRENGTH.—WAR FOOTING.

The brigade (2 companies) consists of 13 officers and 508 rank and file.

The company consists of 5 officers and 250 rank and file.

XII.—THE ARTILLERY WORKMEN.

There are 5 companies of artillery workmen, viz, 2 companies of laboratory workmen, 2 companies of artificers, and 1 company of armorers; in all 15 officers and 500 rank and file, besides artillery veterans, the number of whom is not fixed.

XIII.—THE VETERAN ARTILLERY.

The veteran company of artillery was abolished in April, 1895.

XIV.—ENGINEER TROOPS.**(a) GENERAL.**

There are 5 regiments of engineers and a railway brigade. The 1st and 2d are regiments of sappers, the 3d is a regiment of telegraphists, the 4th consists of pontoniers, and the 5th of miners.

Each regiment of sappers consists of a staff, a depot, 12 companies of sappers, and 2 companies of train.

The regiment of telegraphists consists of a staff, a depot, 12 telegraph companies, 2 specialist companies, and 2 train companies.

The pontoon regiment consists of a staff, a depot, 8 companies of pontoniers, 2 lagoon companies, and 3 companies of train.

The regiment of miners consists of a staff, a depot, 12 mining companies, and 1 train company.

The railway brigade consists of a staff and 6 companies.

In time of peace the engineer troops are distributed in 6 territorial commands under major generals; they are also subordinate to the commanders of the corps or divisions in whose territory they may be stationed, and the inspector of engineers. On mobilization for war the engineer troops are distributed by companies, one company of sappers for each division.

A brigade of telegraphists is organized for each army and consists of as many companies as there are army corps, normally three.

(b) STRENGTH.—PEACE FOOTING.

The 1st and 2d regiments consist of 62 officers and 1,590 rank and file.

The company of sappers consists of 3 officers and 110 rank and file. An indeterminate number of veterans may be attached to the sapper companies.

The regiment of telegraphists consists of 72 officers and 1,850 rank and file.

The company of telegraphists consists of 3 officers and 110 rank and file.

The pontoon regiment consists of 71 officers and 1,582 rank and file.

The pontoon company consists of 4 officers and 110 rank and file.

The regiment of miners consists of 59 officers and 1,534 rank and file; a mining company has the same strength as a telegraph company. An indeterminate number of veterans may be attached to the mining companies.

A train company consists of 3 officers and 100 men.

A railway company consists of 4 or 5 officers and 120 or 140 men. The lower figures refer to the construction companies; the others to the operating companies.

(c) STRENGTH.—WAR FOOTING.

The telegraph brigade, of 3 companies, consists of 18 officers and 782 rank and file.

The pontoon brigade, of 2 companies, consists of 20 officers and 795 rank and file.

The company of sappers, including the engineer park, consists of 5 officers and 265 rank and file. A company of miners has the same strength.

The company of telegraphists consists of 5 officers and 258 rank and file.

The railway company consists of 5 officers and 265 rank and file.

The pontoon company consists, with bridge equipment, of 8 officers and 393 rank and file.

XV.—THE TRAIN TROOPS.**(a) GENERAL.**

In time of peace the train troops are formed into companies belonging to the field artillery and engineer regiments and are subordinate to the units to which they belong. On mobilization for war these companies furnish sections and detachments of variable strength according to the importance and nature of the units to which they are detailed.

The train troops consist of 40 companies of artillery train at the ratio of from 1 to 4 companies per regiment of field artillery, and 10 companies for the engineer regiments; 50 companies in all.

(b) STRENGTH.—PEACE FOOTING.

The company of artillery train consists of 3 officers and 90 rank and file.

The company of engineer train consists of 3 officers and 100 rank and file.

XVI.—THE MEDICAL AND SANITARY SERVICES.**THE MILITARY SANITARY CORPS (CORPO SANITARIO MILITARE).**

The military sanitary corps consists of a military sanitary inspectorate, 12 territorial directions, directions of principal military hospitals; medical officers, and 12 sanitary companies.

The military sanitary inspectorate is composed of 1 chief inspector (surgeon major general), 2 inspectors (surgeon major generals or surgeon colonels), an apothecary inspectorate, and a secretary's office.

The number of directions of principal military hospitals is fixed by royal decree. In November, 1895, the number was 25.

The chief inspector is directly subordinate to the minister of war.

The two medical inspectors are placed in charge of bureaus of the inspectorate.

The apothecary inspector directs the chemical and pharmaceutical bureau of the inspectorate.

The secretary directs the secretary's office.

MEDICAL OFFICERS.

Original appointments are made to the grade of surgeon second lieutenant, by competitive examination among graduates who have obtained both degrees in medicine and surgery, who are not over 28 years of age, who are natives of the kingdom, and who fulfill the other requirements of moral and physical fitness required of all candidates for commissions in the army.*

After two years' service, surgeon second lieutenants are reexamined for promotion to the grade of surgeon lieutenant. Those who fail may be reexamined at the end of a year. If they fail a second time, they are excused from military service and are considered as having voluntarily resigned.

The grades of medical officers run from surgeon second lieutenant up to surgeon colonel. The surgeon major generals, it will be remembered, belong to the general staff.

* At the last competition in 1895, competitors were limited to those who had already obtained the appointment of surgeon second lieutenant of reserve. The limit of age was raised to 30, and candidates, if married, were required to be able to put up an endowment fund for their families, yielding 2,000 francs income.

APOTHECARIES.

Original appointments are made to the grade of apothecary 3d class (assimilated to the grade of second lieutenant) by competitive examination among aspirants who have obtained the degree of doctor of chemistry and pharmacy, or who are licensed apothecaries. The other requirements are similar to those stated for medical aspirants.

The year following their admission to the grade of apothecary 3d class, these officials are subjected to a competitive examination, and promotions are made, among those who pass, in the order of merit. Those who fail to pass this examination are excused from service and are considered as having resigned.

Apothecaries are military employees, not military officers. Their grades are, however, assimilated to those of the military hierarchy up to that of apothecary inspector (*chimico farmacista ispettore*), which corresponds to the rank of lieutenant colonel.

THE SANITARY COMPANIES.

Detachments from these companies are employed in the various hospitals, branch hospitals, convalescent depots, and garrison and special infirmaries. They are officered by details from the medical corps (*corpo sanitario militare*) and are under the control of the medical officers in charge of the hospitals where they are stationed and also under medical directors of army corps.

XVII.—THE MILITARY COMMISSARIAT CORPS.

This is the supply corps of the army. Its functions include not only the furnishing of subsistence, but also of quarters and other supplies necessary for the army. It comprises 12 directions, the commissariat corps proper, and 12 subsistence companies.

The directions are under commissary officers of the grade of colonel or lieutenant colonel (*colonello commissario o tenente colonello commissario*).

The commissary officers are largely graduates of the military school of Modena, where cadets are educated for the infantry, cavalry, and commissary corps.

The subsistence companies are employed in the various establishments of the commissariat. They are officered by details from the commissariat corps and are under the control of the commissary directors.

XVIII.—THE MILITARY ACCOUNTANT CORPS.

The officers of this corps are attached to regiments and various establishments as keepers of accounts, magazine officers, and on the staffs of corps, divisions, and other commands for similar purposes. What is called the administrative office for various military personnels, referring to the personnels of all services subordinate to the war ministry that have no councils of administration, absorbs a large number of these officers. The military clothing and equipment magazines, of which there are three, are also directed and officered from this corps.

The office of revision of military accounts is not, as might be supposed, directed by an officer of the accountant corps. It is directed by a general officer and its personnel is composed of officers and employees belonging to various corps and branches of the army.

The accountant second lieutenants are taken exclusively from the noncommissioned officers of the army. The accountant lieutenants are taken from the accountant second lieutenants, and from lieutenants of the various arms, in the proportions of two-thirds and one-third respectively. The grades in this corps run from accountant second lieutenant (*sotto-tenente contabile*) to accountant colonel (*colonello contabile*).

XIX.—THE MILITARY VETERINARY CORPS.

The officers of this corps, who have titles and a status similar to those of medical and commissary officers, such as veterinary colonel, etc., down to veterinary second lieutenant, are attached to the staffs or headquarters of army corps, to the mounted regiments of the army, to the remount depots, and to the schools provided with horses. At the head of the corps is a veterinary colonel, who is chief of the veterinary inspection office of the general secretariat of the war ministry.

This corps is recruited by competitive examination from aspirants who belong to the army, and who have the veterinary diploma. The orders for the last competition (*Giornale Militare Ufficiale*, 1894, Atto No. 95) impose restrictions as to age (not to exceed 28), marriage, etc., similar to those imposed upon candidates for the position of surgeon second lieutenant.

XX.—TOTAL STRENGTH.—PEACE FOOTING.

For the year ending June 30, 1895, the limit put by the budget on the average effective strength of the army, made it 222,275 all ranks, counting military employees. At the same time the organic strength, which included the men on leave, and those who, while liable to service, had not yet been called out, was, in round numbers, 276,000 officers, employees, and men.

XXI.—TOTAL STRENGTH.—WAR FOOTING.

(From actual returns made to the Italian War Ministry, June 30, 1894.)

Permanent army (with the colors)	288,182
Permanent army on unlimited leave	532,430
Mobile militia, and special militia of the Island of Sardinia	510,081
Territorial militia, trained	786,502
Total	2,067,195
Territorial militia, untrained	1,330,174
Grand total, officers not included	3,397,369

XXII.—PROSPECTIVE STRENGTH.—WAR FOOTING.

(Estimate of a foreign staff officer.)

Taking the annual contingent as 100,000, and the number of years of service as 19, and deducting 4 per cent the first year, 3 per cent the second year, and 2 per cent every year following, and allowing time enough for the laws now in force to produce their full effect, the following will be very nearly the result:

Permanent army and its reserve (say 8 classes)	710,016
Mobile militia	813,808
Territorial militia (men who have passed through the permanent army and the mobile militia)	491,707
Total	1,525,526

This does not include the untrained territorial militia, and some that have had only a slight training.

MEXICO.

I.—AREA AND POPULATION.

The Republic of Mexico has an area of 767,005 square miles and a population of 12,056,046 (estimated in 1893), or 15.6 per square mile.

II.—AVAILABLE STRENGTH.

The available forces of Mexico consist of a regular army of some 23,000 officers, officials, men and employees, the national guard, and some auxiliary forces.

III.—CONDITIONS OF SERVICE.

The army is recruited partly by voluntary enlistment, partly by conscription in the states, and partly by sentencing criminals to service in the army. Men less than 21 years of age who wish to enlist must present the permit of their fathers or guardians; volunteers must be not less than 18 nor more than 47 years of age and not less than 1.6 meters in height.

IV.—MILITARY EXPENDITURE.

The budget for 1895-96 appropriates \$9,130,649.08 (Mexican).

V.—COMMAND.

The command is exercised by the commanders of the tactical units and military zones, the chief command resting with the President. As regards the latter's functions, the provisions of the constitution of the United States of Mexico are very similar to ours and contain among others the following:

"The powers and obligations of the President are the following: To appoint and remove freely the Secretaries of the Cabinet * * * to appoint with the approval of Congress the colonels and other superior officers of the national army and navy * * * to appoint the other national officers of the army and navy, according to law * * * to control the permanent armed force by land and sea for the internal security and external defense of the Federation * * * to control the national guard for the same objects within the limits established by article 72, Clause XX * * * to declare war in the name of the United States of Mexico, after the passage of the necessary law by the Congress of the Union."

At another place the constitution says: "The exclusive powers of the senate are to ratify the appointments which the President of the republic may make of * * * colonels and other superior officers of the national army and navy on the terms which the law shall provide * * * to authorize the Executive to permit the departure of national troops beyond the limits of the Republic * * * to give its consent in order that the Executive may dispose of the national guard outside of their respective states or territories, determining the necessary force."

Among the powers of the general congress are mentioned: "To ratify the appointments which the executive may make of * * * the colonels and other superior officers of the national army and navy; to declare war in view of the data which the Executive may present to it; * * * to permit the departure of national troops beyond the limits of the Republic * * * to raise and maintain the army and navy of the Union, and to regulate their organization and service * * * to establish regulations for the purpose of organizing, arming, and disciplining the national guard, reserving respectively to the citizens who compose it, the appointment of the commanders and officers, and to the states the power of instructing it in conformity with the discipline prescribed by said regulations * * * to give its consent in order that the Executive may control the national guard outside of its respective states and territories, determining the necessary force."

VI.—ORGANIZATION.

It is stated that the Mexican army is formed in four divisions, that the division usually consists of three brigades, and that the brigade consists of two or more battalions; also that in case of war army corps are to be formed. It would seem, however, as though the Mexican troops were, like our own, without any tactical organization whatever beyond that of the regiment, and that the troops are assigned to duty in territorial divisions as they are in the United States.

VII.—THE WAR DEPARTMENT.

The war department is organized into the following branches according to the regulations of 1883: The central office ("oficialia mayor"), first section, second section, third section, library section, archive section, department of the special corps of the general staff, department of engineers, department of artillery, department of the navy, department of the medical corps, department of infantry and cavalry, and correspondence and mailing section (oficialia de partes).

The central office is presided over by the "official mayor" who superintends the service in the war department, and receives the reports of the chiefs of sections and departments on stated days and at stated hours.

The first section deals with requests for amnesty, telegrams addressed to the secretary, movements of troops and revolutionary movements, escorts of all kinds, decrees declaring the state of siege, authorizations for arming auxiliary forces, safe conducts, and correspondence with state governors.

The second section deals with transmission of commissions to general officers, field officers, and officers, pensions to widows and orphans of military persons from general to private, and retirement of enlisted men; retirement, leaves of generals, field officers, and officers, and orders directing transportation by public conveyance.

The third section issues orders for payments under all the items of the budget, for rent of quarters and buildings, and has preliminary revision of such accounts, accounts for transportation, payment of freight, settlement of telegraph accounts, and in general all claims against the government not directly connected with organization and administration of the army.

The remaining sections are sufficiently explained by their titles and will be dealt with below in connection with the branches of the service to which they belong.

The regulations of 1883 divide the matters dealt with by the war department under two heads as follows:

I.—The organization of the army and navy, auxiliary troops, the general service, mobilization and recruitment, general exercises of troops including target practice, military justice in relation to amnesty, the sanitary and hospital service, medical and veterinary officers, the military college, construction and maintenance of warlike matériel, guns, small arms, ammunition, artillery shops, arms and powder factories, gun and projectile foundries, preservation and repair of fortifications and construction of new fortifications, the gendarmerie of the army, promotion in all classes of the army from sergeant to general, exchanges and transfers, matters relating to the service of present and past members of the army, generals in command of troops, generals "en cuartel," retired generals, field officers and officers, military colonies, the navy in all its branches, military districts and location of corps, brigades, and divisions, returns of all persons of the army and navy, "jefes" of the federal army in the states or military districts.

II.—The service of the administration corps in all its branches, granting of pensions to widows and orphans of military persons, military hospitals, remount service, pay, clothing and equipment, administration of the fortified places, magazines of clothing, equipment, rations, and forage, estimates, assignments, contracts, control of the inspection, purchase of arms, ammunition, and every species of warlike matériel.

The following is the personnel in the secretary's office of the war department: 1 secretary of war, 1 "official mayor," 2 colonels of infantry, 4 colonels of cavalry, 1 lieutenant colonel of infantry, 3 lieutenant colonels of cavalry, 1 major of infantry, 3 majors of cavalry, 1 senior captain of infantry, 4 senior captains of cavalry, 1 junior captain of infantry, 5 junior captains of cavalry, 7 lieutenants of infantry, 2 lieutenants of cavalry, 2 sublieutenants of infantry, 9 ensigns, 10 sergeants, and 6 employees.

VIII.—THE MILITARY ADMINISTRATION.

The military administration is in the hands of the "corps of military administration," which forms an integral part of the general treasury department of the federal government. The corps of military administration is under the direct orders of the treasurer general, who is in fact its chief as commissary general of the army and navy, with executive, inspection, and administrative powers. This branch of the treasury department audits the army accounts, and is for that purpose divided into nine sections. The personnel of the administration corps is divided into four classes:

To the first class belong paymasters of divisions and army corps, chiefs of sections in the department, and the purveyors of divisions and army corps.

To the second class belong the paymasters of brigades, regiments, battalions, establishments and corporations, the officials of the department, brigade and division purveyors, magazine guards.

To the third class belong paymasters of the cadres of battalions and regiments, officials of the administrative departments and of the special general staff corps in the war department.

To the fourth class belong the assistants of the paymasters and clerks of the department.

The officials of the administration corps have the following military rank: The treasurer general (chief of the corps), brigadier general; the subcommissary (chief of the department), colonel; the officials of the first class, lieutenant colonel; the officials of the second class, senior captain; the officials of the third class, junior captain; and the officials of the fourth class, lieutenants. The administration officers serving with troops, etc., are subordinated to the military commanders.

IX.—MILITARY ZONES.

The United States of Mexico are divided into eleven military zones as follows:

The first zone comprises the states of Sonora, Sinaloa, and the territory of Lower California, each with a separate chief under the orders of headquarters of the zone at Torin.

The second zone consists of the states of Durango and Chihuahua, with headquarters in Chihuahua.

The third zone comprises the states of Coahuila and Nuevo Leon, with headquarters at Monterey.

The fourth zone is formed by the state of Tamaulipas, with headquarters at Matamoras.

The fifth zone comprises the states of Jalisco, Colima, and the military district of Tepic, with headquarters at Guadalajara.

The sixth zone comprises the states of San Luis Potosi, Zacatecas, and Aguascalientes, with headquarters at San Luis Potosi.

The seventh zone comprises the states of Michoacan, Queretaro, and Guanajuato, with headquarters at Leon.

The eighth zone comprises the states of Puebla, Tlaxcala, and Veracruz, with headquarters at Puebla.

The ninth zone comprises the states of Guerrero and Oaxaca (excepting the districts of Juchitan and Tehuantepec), with headquarters at Oaxaca.

The tenth zone comprises the states of Chiapas and the districts of Juchitan and Tehuantepec of the state of Oaxaca, with headquarters at Juchitan.

The eleventh zone comprises the states of Tabasco, Campeche, and Yucatan, with headquarters at Merida.

The decree of the President of November 8, 1894, states that the military forces in each district will be regulated by the chief executive and that two or more districts may be united under one military command. When in the service of the general government, the national guard and auxiliary forces of the states are under the orders of the commanders of military zones. The garrisons of seaports and the "comandancias militares" are under the direct orders of the secretary of war and are not subject to the orders of the chiefs of military zones.

X.—THE STAFF.

The staff consists of the—

Staff of the army (plana mayor del ejército).

General staff of the army (cuerpo especial de estado mayor).

Staff of the president (estado mayor del presidente de la república).

Government of the palace (gobierno de palacio).

THE STAFF OF THE ARMY.

(Plana Mayor del Ejército.)

The staff of the army comprises the generals of division and the actual generals of brigade. General officers are classified in three categories:

To the first category belong those in command of troops or who hold a military commission from the government.

To the second category belong those of the reserve who are "en cuartel," i. e., on waiting orders.

To the third category belong those retired on account of length of service, disability, or mutilation suffered in campaign or action.

Of the first category there are to be 5 generals of division and 22 of brigade, of the second 5 generals of division and 16 of brigade, and of the third category 4 generals of division and 12 of brigade.

The generals of division always belong to the regular establishment; generals of brigade may also belong to the auxiliary troops at the discretion of the government; if belonging to that category of troops, generals of brigade do not enjoy the same rights as to retirement, etc., as those in the regular establishment. Generals on the retired list may be recalled to the active list by the secretary of war.

THE GENERAL STAFF OF THE ARMY.

(Cuerpo Especial de Estado Mayor.)

In order to enter the general staff, it is required that the officer shall have passed through the military college with distinction and also the entrance examination into the general staff. Other officers of the army below the grade of lieutenant colonel wishing to enter the general staff are required to submit to an examination by a board consisting of professors of the military college and a field officer of the general staff; the examination completed, a report is drawn up and submitted to the secretary of war for his decision.

The duties of the general staff deal chiefly with everything relating to the different arms, their organization, and service regulations; the making of maps and compiling of statistics of the republic, making of plans and itineraries. The general staff is directly subordinated to the secretary of war and divided into the general staff in the war ministry and the general staff attached to troops.

To the troops the officers of the general staff are attached at the following rate: To the brigade, 1 field officer, 2 captains, and 2 lieutenants; to the division, 1 colonel, 1 major, 2 captains, and 3 lieutenants; to an army corps (when organized), 1 general or colonel, 2 field officers, 3 captains, and 3 lieutenants; to an army headquarters, 1 general of division or brigade, 2 colonels, 2 lieutenant colonels or majors, and 8 captains. In addition a number of subalterns from the infantry and cavalry may be assigned to each staff as the exigencies of the service may require. The chief of staff of the army corps has the title of "quarter-master." The field officers and officers of lower grade are employed for one year on scientific work and serve the next year with battalions or regiments, passing successively to the infantry, cavalry, and artillery. The lieutenants of the general staff are considered as alumni of the general staff until in the opinion of the chief of the general staff they have the necessary experience or vacancies occur, when they become captains.

As stated above, the general staff is represented in the war ministry by a separate section.

At the head of the department of the general staff in the war department is a general or colonel as chief of the corps and of the department, and one colonel chief of the geographical, topographical, statistical, and cartographical sections. The following are the sections into which the office is divided:

The first section deals with organization, mobilization, and regulations.

The second section deals with matters of general character, translation and revision of military works for the army.

The third section deals with topography, statistics, and itineraries.

The fourth section has geography and map making.

The fifth section attends to the correspondence and archives.

The sixth section deals with administration.

The regulations provide the following personnel for the general staff: 1 chief of the corps and of the department (general or colonel), 5 colonels, 10 lieutenant colonels, 10 majors, 22 senior captains, 22 junior captains, 48 lieutenants, and 2 majors of cavalry, attached.

THE GENERAL STAFF OF THE PRESIDENT.

(Estado Mayor del Presidente de la República.)

The general staff of the president of the republic consists of 1 general or colonel, 4 field officers as aids-de-camp, and 4 subalterns as orderly officers. The duties of this staff, it is stated, are to be, in the first place, the safeguarding of the person of the president, to receive and transmit his orders, escort him at ceremonies, work out scientific questions that may come up, and keep guard in the antechamber. Their services thus are chiefly about the person of the president. These officers are detailed from the army or navy, the chief of the staff from some scientific branch of the service, the field officers are taken from all branches of the service, and the subalterns are selected from the scientific corps of the army or navy. These officers do not cease to belong to their original branch of the service.

THE MILITARY GOVERNMENT OF THE PALACE.

Although not stated so, either in the regulations or budget, the "gobierno de palacio" has been included under the heading of staff as the most appropriate place to which to assign it. It consists of 1 general of brigade, 1 major of cavalry, and 1 senior captain of cavalry.

The subjoined table gives the composition of everything comprised under the heading of staff:

	Staff of the army.	Department of general staff.	Corps of general staff.	General staff of president.	Palace government.	Total.
Generals of division	8					8
Generals of brigade	42	1			1	44
Colonels of staff			5	1		6
Lieutenant colonels of staff			10	*4		14
Majors of staff			10			10
Majors of infantry		2				2
Majors of cavalry		2	2		1	5
Senior captains of staff			22			22
Senior captains of cavalry		5			1	6
Junior captains of staff			22			22
Junior captains of infantry		1				1
Junior captains of cavalry		3				3
Lieutenants of staff			48	†4		52
Lieutenants of cavalry		6				6
Men (and employees)		8				8

* Selected from all branches.

† Selected from scientific branches.

XI.—ENGINEERS.

The personnel of this department may be divided into the (a) engineer staff at the war department (departamento de ingenieros), (b) corps of engineers (plana mayor facultativa de ingenieros), and (c) battalion of engineers.

(a) The engineer staff at the war department consists of 1 general of brigade (chief of the corps and department), 1 lieutenant colonel of engineers, 1 senior captain of engineers,

1 junior captain of infantry, 1 junior captain of cavalry, and 1 sublieutenant of infantry. Directly under the "departamento de ingenieros" is the cartographic section, in which 1 lieutenant colonel, 1 senior and 1 junior captain of engineers are employed.

(b) The corps of engineers consists of 7 colonels, 7 lieutenant colonels, 8 majors, 18 senior captains, 16 junior captains, 43 lieutenants, and 12 "guardas."

(c) The battalion of engineers is enumerated in the budget without officers and it is therefore assumed that officers from the "plana mayor facultativa" are from time to time assigned to it. The battalion consists of four companies and a noncommissioned battalion staff of 21 men. The company consists of 34 sappers and miners, 34 pontoniers, 70 workmen, and a company (enlisted) staff of 6. The total strength of the battalion is 597 rank and file. The table below shows the composition of the engineer corps according to the budget of 1894-95:

	Staff at war ministry.	Corps of engineers.	Cartographic section.	Battalion of engineers.	Total.
Generals of brigade	1				1
Colonels of engineers		7			7
Lieut. colonel of engineers	1	7	1		9
Majors of engineers		8			8
Senior captains of engineers	1	18	1		20
Senior captains of infantry	1				1
Junior captains of engineers		16	1		17
Junior captains of cavalry	1				1
Lieutenants of engineers		43	2		45
Sublieutenants of infantry	1				1
Enlisted men				597	597
Employees	1	12			13

XII.—ARTILLERY.

According to the president's decree of February 23, 1894, the artillery of the Mexican army consists of:

- (1) A department annexed to the war ministry.
- (2) Four battalions of artillery.
- (3) One fixed company of artillery at Veracruz.
- (4) The general park.
- (5) The arms factory.
- (6) The foundry.
- (7) The arsenal.
- (8) The powder factory.

The artillery may therefore be divided into (a) the artillery staff at the war ministry, (b) the staff artillery (plana mayor facultativa) corresponding to our corps of ordnance, and (c) the line artillery.

(a) The artillery staff at the war ministry is charged with everything pertaining to armament, and is divided into the "personnel" section, the "matériel" section, the accounting section, and the archive section.

The personnel of the department consists of 1 brigadier general (chief of the department and of the corps of artillery), 2 colonels (subinspectors), 3 lieutenant colonels, 3 senior captains, and 13 officials.

(b) The staff artillery (ordnance) comprises:

(1) The general park, which is charged with the reception, preservation, and distribution of warlike material, arms, and ammunition.

(2) The arms factory, which is charged with the manufacture of small arms and metallic ammunition, and repair of small arms.

(3) The foundry, which is charged with the manufacture of guns, projectiles, and such iron, brass, and bronze work as may be required by the other departments.

(4) The arsenal, which is charged with the manufacture of gun mounts, wagons, pack saddles, harness, etc.

(5) The powder factory, which is charged with the manufacture of powder and preparation of artillery ammunition, etc.

TABLE OF PERSONNEL—STAFF ARTILLERY.

	General park.	Arms factory.	Foundry.	Arsenal.	Powder factory.	Total.
Colonel	1					1
Lieutenant colonels	1	1	1	1	1	5
Majors	3	1	1	1	1	7
Captains, senior	8	1	1	1	1	7
Captains, junior	8	1	1	2	1	8
Lieutenants	1	2	2	2	2	9
Officials	1					1
Employees	17	12	12	12	12	65
Men		6	20	20	20	66

(c) The line artillery consists of 4 battalions and the local (fixed, "fija") company of Veracruz. The battalion staff consists of 5 officers and 4 rank and file; each battalion has four companies consisting of 6 officers and 79 men. The local company at Veracruz consists of 5 officers and 67 rank and file. The total organization of the artillery is therefore as follows:

ARTILLERY.	Staff at war department.	Staff artillery.	Line artillery.	Total.
General of brigade	1			1
Colonels	2	1	4	7
Lieutenant colonels	3	5	4	12
Majors		7	4	11
Senior captains	3	7	21	31
Junior captains		8	17	25
Lieutenants		9	71	80
Rank and file		66	1,347	1,413
Officials and employees	18	66		79

XIII.—MEDICAL DEPARTMENT.

The medical department is composed of (a) the staff (departamento) at the war department; (b) the staff of the medical school of application; (c) the medical officers attached to troops; (d) the medical officers attached to hospitals; (e) the corps of veterinarians; (f) the hospital company (compañía de enfermeros), and (g) the ambulance company (tren de ambulancia).

(a) The medical staff at the war ministry consists of 1 brigadier general, surgeon general and chief of the department; 1 brigadier general, inspector of hospitals; 1 lieutenant colonel, surgeon, chief of the medical section; 1 lieutenant colonel, veterinary surgeon, chief of the veterinary section; 1 senior captain of cavalry, and 2 lieutenants of cavalry.

(b) The staff of the medical school of application consists of 1 colonel, surgeon, director; 7 lieutenant colonels, professors; 1 major, surgeon, charged with the military details; 1 lieutenant colonel, pharmacist; 12 lieutenants, students; 2 officials with the rank of lieutenant colonel and senior captain, and 1 sergeant.

(c) The medical officers attached to troops are 1 colonel, surgeon; 45 majors, surgeons, and 12 senior captains.

(d) The medical officers attached to the hospitals of Puebla, San Luis Potosi, Veracruz, Guadalajara, Tampico, Tepic, Mazatlan, Monterey, and Matamoras number 9 lieutenant colonels, 11 majors, 2 senior captains, 5 junior captains, 4 officials with rank of major, 9 officials with rank of junior captain, and 5 officials with rank of lieutenant.

(e) The corps of veterinarians consists of 4 majors, 4 senior captains, 4 junior captains, and 4 lieutenants.

(f) The hospital company consists of 1 senior infantry captain, 2 infantry lieutenants, 2 infantry sublieutenants, 18 sergeants (celadores), 18 sergeants (enfermeros mayores), 39 corporals (enfermeros primeros), and 100 soldiers (enfermeros segundos).

(g) The ambulance company consists of 1 lieutenant of infantry, 1 sublieutenant of infantry, 5 sergeants (overseers), 18 drivers, and 50 conductors.

The total strength and personnel of the medical department is tabulated below:

	War ministry.	Medical school.	Attached to troops.	Attached to hospi- tals.	Veteri- narians.	Hospital company.*	Ambu- lance company.*	Total.
Generals of brigade	2							2
Colonels		1	1					2
Lieutenant colonels	2	8		9				19
Majors		1	45	11	4			61
Captains, senior	†1		12	2	4	1		20
Captains, junior				5	4			9
Lieutenants	‡2	12			4	2	1	21
Sublieutenants						2	1	3
Sergeants		1				36	5	42
Corporals						39		39
Men						100	68	168
Employees	1							1
Officials		2		18				20

* Officers belong to infantry.

† Captain of cavalry.

‡ Lieutenants of cavalry.

XIV.—INFANTRY AND CAVALRY.

These two branches together form one section in the war ministry presided over by a general of brigade assisted by the following staff: 2 colonels of infantry, 1 colonel of cavalry, 1 lieutenant colonel of infantry, 1 lieutenant colonel of cavalry, 4 majors of cavalry, 3 senior captains of infantry, 6 senior captains of cavalry, 4 junior captains of infantry, 4 junior captains of cavalry, 2 lieutenants of infantry, 4 lieutenants of cavalry, 1 sublieutenant of infantry, and 1 ensign.

INFANTRY.

The infantry consists of 27 battalions on a peace footing, 1 battalion on a war footing, 4 cadre battalions on a peace footing, the local ("fija") company of Ensenada. A battalion of "Tiradores" (riflemen), first corps of the "Brigada Gutierrez," and companies of Sierra Gorda also figure in the budget with a lump sum, but as no details are given, it is supposed that the organizations referred to belong to the national guard, or, at any rate, are not continuously in the service of the government.

The battalion consists of the staff and 4 companies. The staff comprises 5 officers and 6 rank and file. The company comprises 1 senior and 1 junior captain, 3 lieutenants, 3 sublieutenants, and 104 rank and file. Total strength of battalion, 37 officers and 422 rank and file.

The strength and composition of the battalion on war footing is as follows: Staff, 5 officers and 6 rank and file; 4 companies, each consisting of 1 senior and 1 junior captain, 3 lieutenants, 3 sublieutenants, and 176 rank and file; total strength of battalion, 37 officers and 710 rank and file. The Ensenada company consists of 160 rank and file, the number and grade of officers being the same as in the other infantry companies.

INFANTRY.	Colonels.	Lieutenant colonels.	Majors.	Senior captains.	Junior captains.	Lieutenants.	Sublieutenants.	Rank and file.
Company				1	1	3	3	104
Battalion staff	1	1	1	1			1	6
Battalion	1	1	1	5	4	12	18	422
27 battalions, peace footing.	27	27	27	135	108	324	351	11,394
1 battalion, war footing	1	1	1	5	4	12	18	710
4 cadre battalions	4		4	20		16	16	476
Ensenada company				1	1	3	3	160
Total infantry	32	28	32	161	118	355	488	12,740

CAVALRY.

According to the budget the cavalry consists of the corps of gendarmes, 13 cavalry regiments on a peace footing, and 2 auxiliary cavalry corps.

The corps of gendarmes consists of a staff and two companies. The staff is composed of 5 officers and 9 rank and file; each company consists of 1 senior and 1 junior captain, 3 lieutenants, 3 ensigns, and 135 rank and file. Total strength of the corps, 21 officers and 279 rank and file.

The cavalry regiment consists of a staff and 4 "escuadrones." The staff consists of 5 officers and 13 rank and file. The squadron consists of 1 senior and 1 junior captain, 3 lieutenants, 3 ensigns, and 82 rank and file. Total strength of the regiment, 37 officers and 341 rank and file.

The two auxiliary cavalry corps consist each of a staff and 2 squadrons. The staff consists of 5 officers and 4 rank and file, the squadron of 1 senior and 1 junior captain, 3 lieutenants, 3 ensigns, and 98 rank and file. Total strength of the two auxiliary corps, 42 officers

and 400 rank and file. The budget also provides a lump sum for "other auxiliary corps." This sum is somewhat more than five times the amount appropriated for one auxiliary corps.

CAVALRY.	Colonels.	Lieutenant colonels.	Majors.	Senior captains.	Junior captains.	Lieutenants.	Ensigns.	Rank and file.
Regimental staff	1	1	1	1			1	13
Squadron				1	1	3	3	82
Gendarmes staff	1	1	1	1			1	9
Gendarmes squadron				1	1	3	3	135
Auxiliaries:								
1 staff	1	1	1	1			1	4
Squadron				1	1	3	3	98
13 regiments	13	13	13	65	52	156	169	4,433
Gendarmes	1	1	1	3	2	6	7	279
2 auxiliary corps	2	2	2	6	4	12	14	400
Total cavalry	16	16	16	74	58	174	190	5,112

The total strength of the infantry and cavalry is therefore as follows:

	General of brigade.	Colonels.	Lieutenant colonels.	Majors.	Senior captains.	Junior captains.	Lieutenants.	Sublieutenants.	Ensigns.	Rank and file.	Employees.
Staff	1										2
Infantry		2	1		3	4	2	1			
Cavalry		1	1	4	6	4	4		1		
Total staff	1	3	2	4	9	8	6	1	1		2
Total infantry		32	28	32	161	113	355	483		12,740	
Total cavalry		16	16	16	74	58	174		190	5,112	
Total inf. and cav	1	51	46	52	244	179	535	484	191	17,852	2

In addition to the foregoing, the budget provides for a military supreme court, "asesores militares," and "juzgados militares de instrucción." The military supreme court is divided into sections as follows: The president's section, the first chamber, the second chamber, the archives, and the "ministerio público militar."

The personnel provided under all of these headings is as follows:

General officers and officials with rank of general officers—3 generals of division and 11 of brigade, and 1 official without military rank called vice president, with the salary of a general of division.

Officers of infantry—12 colonels, 12 lieutenant colonels, 1 major, 1 senior captain, 1 junior captain, 1 lieutenant, and 6 sublieutenants.

Officers of cavalry—7 colonels, 2 lieutenant colonels, 2 majors, 3 senior captains, 1 junior captain, 2 lieutenants, 5 ensigns, besides 4 sergeants and 4 messengers.

The following table gives the details of the personnel:

Military supreme court, juzgados, asesores, etc.	SUPREME COURT.		Asesores militares.	Juzgados militares.	Total.
		Infantry.	Cavalry.		
General of division	1				1
Vice president	1				1
Generals of brigade	11				11
Asesores				11	11
Colonels		12	7	11	30
Lieutenant colonels		12	2	11	25
Majors		1	2		3
Senior captains		1	3		4
Junior captains		1	1		2
Lieutenants		1	2		3
Sublieutenants		6			6
Ensigns			5		5
Sergeants			3		3
Messengers	4				4

The budget also provides for military commanderies (comandancias militares), majors of towns and fortresses (mayorías de plaza y fortalezas), the military music school, the escort of the geographical exploration commission, the military college, and the depot of officers, the personnel of all of which is included in the subjoined table:

	General of division.	General of brigade.	Asesores.	Colonels.	Lieutenant colonels.	Majors.	Senior captains.	Junior captains.	Lieutenants.	Sublieutenants.	Ensigns.	Rank and file.	Employees.	Professors.	Instructors.
Infantry				7	2	2	4	4	5	6					
Military commands	1	2													
Town majors, etc.			6												
Cavalry				8	7	10	9	2	12		15	16	18		
Total	1	2	6	15	9	12	13	6	17	6	15	16	18		
Military music school:															
Cavalry					1										
Infantry								1							
Total					1			1							
Escort of the geographical exploration commission (cavalry)							1					52			
Military college				2		1	2	2	7			264	44	33	15
Officers' depot				1	2	1		3							
Grand total	1	2	6	18	12	14	16	12	24	6	15	392	57	33	15

Two bodies of invalids are also provided for, *i. e.*, the "Cuerpo Nacional de Inválidos," and "Mutilados y pensionados."

XV.—TOTAL STRENGTH.

The total strength of the Mexican army provided for in the budget is 2,635 officers and officials and 20,692 rank and file, including employees. To this we may add an equivalent for the lump sums provided in the budget, as the troops for which the money is intended are no doubt temporarily in the government service and would be at once available in case of war. This would give about 5 auxiliary cavalry corps, or about 105 officers and 1,000 men, and nearly 2½ companies of infantry like that of Ensenada, or about 18 officers and 300 men.

In addition to these there are some bodies of men under the department of "Gobernación," who have military training and are considered the most efficient troops Mexico could place in the field. They are the foot and mounted gendarmerie of the federal district and the "policía rural." The foot gendarmerie numbers 93 officers and 1,500 men, the mounted gendarmerie 32 officers and 403 men, the "policía rural" numbers 9 corps of 200 "guardas" and 1 corps of 100 "guardas," together 30 officers and 2,039 rank and file. This gives a grand total of 28,848 officers and men.

WAR FOOTING.

The regulations prescribe that on mobilization the battalions of infantry shall increase the men in each squad to 11, *i. e.*, about double the number of privates. The same is prescribed for the cavalry. The artillery is to double the cannoneers and 2d class drivers so that twice the ordinary number of guns can be served, but in the artillery the order to mobilize is not to affect more than one or two companies in each battalion. If this scheme be carried out on mobilization, the Mexican forces of the first line will amount to about 50,000 men.

The regulations state that the territorial or reserve army comprises the national guard, gendarmerie, and rurales, but no accurate estimate can be made of the number of men that could be made available. The Mexicans claim that they would have a total force of 132,000 infantry, 26,000 cavalry, and 4,000 artillery, altogether 162,000 men.

RUSSIA.

I.—AREA AND POPULATION.

The Russian Empire has an area of 8,660,228 square miles and a population of 118,014,187, of which 2,095,504 square miles with a population of 99,553,024 pertain to European Russia, and 6,564,778 square miles with 18,049,510 inhabitants to the Asiatic possessions of Russia.

II.—AVAILABLE STRENGTH.

The number of young men who became liable to military service in 1894 was 953,679 (or less than 1 per cent of the total population), of which 268,351 were incorporated in the army (28 per cent of the total number of registered men and nearly 0.23 per cent of the population) and 217,865 in the militia (nearly 23 per cent of number of registered men, and nearly 0.19 per cent of population), giving a total peace strength of some 840,000 noncommissioned officers and men.

III.—CONDITIONS OF SERVICE.

The conditions of service are laid down in the law of January 13, 1874. All males without distinction of rank are liable to military service with these exceptions: The natives of Turkestan, of the Littoral (Pacific) and Amoor districts and a few other Asiatic districts, the Samojedes in the district of Mesen, and the natives in the governments of Astrachan, Stawropol, and numerous Siberian districts.

The service is of two kinds—in the active army and its reserve and in the militia (opoltchenie). The service in the active army lasts 18 years and is divided into service with the colors, 5 years, and service with the reserve, 13 years. There are numerous exceptions to this rule. For the inhabitants of Trans-Caucasia and the native population of the Kuban and Terek districts the term with the colors is 3 years, in the reserve 15 years. In Finland service with the colors lasts 3 years, in the reserve 2 years.

Certain favors are granted to individuals relative to length of service, the favor depending on the degree of the individual's education, and whether he serves as conscript or volunteer, as follows:

CONSCRIPTS.

(a) Men who possess the education of the first class, *i. e.*, graduates of educational institutions of the first and second classes, such as universities, colleges, gymnasia, and real schools, serve 2 years with the colors and 16 in the reserve.

(b) Men possessing an education of the second class, *i. e.*, graduates of educational institutions of the third class, such as town and district schools, serve 3 years with the colors and 15 in the reserve.

(c) Men who have the education of the third class, *i. e.*, graduates of the common schools, serve 4 years with the colors and 14 in the reserve.

VOLUNTEERS.

Volunteers possessing the education of first class (as above) serve 1 year with the colors and 12 in the reserve.

Volunteers possessing an education of the second class (which is determined by a special examination) serve 2 years with the colors and 12 in the reserve.

For family, financial, and educational reasons men may be freed from service in time of peace, or have their entry in the service postponed; thus, clerical men of all denominations are exempted from service altogether, and medical men, veterinarians, apothecaries, and teachers may be exempted in time of peace.

The minister of war may furlough the men to the reserve before their full term has expired, or keep them for six months after the expiration of their term of service with the colors if the political or other conditions render it advisable.

Upon the expiration of service in the active army the men pass to the militia.

THE MILITIA.

The militia consists of all men capable of bearing arms and between 21 and 43 years of age who do not belong to the standing army, and is divided into two bans.

The first ban is intended for the augmentation and reenforcement of the army and the formation of militia troops and comprises up to the completed 43d year those men who are discharged from the active army, and those who, though able-bodied, became supernumeraries by the drawing of lots and are not the sole supports of families. Since 1888 the four youngest contingents of the first ban are enrolled and under military control and subject to two trainings of 6 weeks.

The second ban consists of men exempted from service in peace as being the sole supports of families and those who are not quite up to the physical standard.

The Cossack is liable to military service, and in return exempt from the capitation tax. Cossack service is divided into active service and militia service.

The active service of the able-bodied Cossack begins on completion of his 18th year and lasts for 20 years as follows:

Three years of preparatory military training at home called the preparatory category.

Twelve years in the "front" category, consisting of three bans of 4 years each. Men in the first ban are with the colors, in the second ban they are subject to one training each year, and in the third ban to one training of 3 weeks only.

Five years in the "ersatz" (depot) category without any service in peace. To the Cossack militia belong all able-bodied Cossacks who do not belong to the active service, without limit as to age.

IV.—ANNUAL EXPENDITURE.

The budget for 1895 amounted to 271,161,313 rubles, about \$213,407,275, and that for 1896 amounts to 17,000,000 rubles more.

V.—SUPREME COMMAND.

The chief command of the armed forces of Russia by land and sea is vested in the Emperor, whose power is absolute and whose will is law. He communicates with the army through the war ministry. Command is exercised, next to the Emperor, by the commanders of military districts, and under them through corps, division, etc., commanders.

VI.—THE MINISTER OF WAR.

The minister of war is appointed by the Emperor and is a general officer. He is responsible to the Emperor alone and has the right to inspect any and all parts of the army; as regards military economical matters, however, he has no special privileges and must make his proposal to the war council of which he is president.

VII.—WAR MINISTRY.

The war ministry consists of—

(a) The imperial headquarters with its chancellery and "convoy." The headquarters consists of the chief of headquarters, the commander of headquarters, and the suite of the Emperor (55 adjutants general, 11 major generals and 54 aids-de-camp). The convoy consists of two (Terek and Kuban) Cossack squadrons. The chancellery transacts the office business of the headquarters and consists of 22 employees.

(b) The superior war council, directly subordinated to the Emperor and responsible to him alone, decides all matters relating to the organization and administration of the army. It decides on all military laws and military-economical projects. In legislative matters the decision of the council requires confirmation by the Emperor before becoming valid. The council is presided over by the minister of war and consists of 18 members appointed by the Emperor. Attached to the council is the codification section and the military sanitary commission, the former examining and preparing all projects of laws, etc., before they are submitted to the council, the latter dealing with matters concerning the army from the medical point of view.

(c) The supreme military court, the highest tribunal of appeal, consists of 1 general as president and 3 generals and 2 officials as members, and 1 military attorney general with 2 assistants.

(d) The office of the war minister is presided over by a lieutenant general and divided into 3 sections—legislative, law, and relief.

(e) The chief staff is divided into 9 sections, 3 subsections, committees, etc., as follows:

1. The first section deals with the organization of the army, strength of establishments, and matters of discipline, instruction, and training.

2. The second section deals with movements and distribution of the army, its transportation and concentration, proposed sites for fortifications, camps, depots, etc., and a subsection has special charge of drill and other regulations.

3. The third section has charge of all kinds of supplies of the army both in kind and money.

4. The fourth section deals with the personnel of officers, except artillery and engineer officers.

5. The fifth section has special charge of everything that relates to recruiting.

6. The sixth section deals with rewards for distinguished service, relief to officers, the widows and orphans.

7. The seventh section deals with the establishments of rank and file, and the training of the reserves.

8. The eighth section deals with the personnel of officers of the reserve or retired list, and the leaves, transfers, and retirements of the officers of the active army.

9. The ninth section deals with cavalry matters exclusively, its armament, equipment, remount service, etc.

The subsections are as follows:

1. The first subsection deals with the military affairs, fortifications, communications, etc., of the military districts in Asia.

2. The military topographical subsection is divided into (a) the geodesical branch, including the scientific instrument department; (b) the cartographic branch, including the drawing, lithographic, printing, binding, engraving, and photographic departments; (c) the general office; (d) the military topographical depot; and (e) the sale department for maps. Altogether there are working under this subsection 9 general officers, 25 colonels, 50 lieutenant colonels, 215 captains, and 155 lieutenants.

3. The third subsection has special charge of the transportation of troops and military stores. There is also a committee on military transport dealing with matters requiring cooperation on the part of other branches of the government.

The following committees, offices, etc., are also functioning under the chief staff:

1. The committee on scientific subjects, which performs many of the functions falling in Prussia to the general staff, viz, the duties of an intelligence office on foreign countries, armies, and statistics; it has charge of the library of the chief staff and of the military records, and supervises the work at the staff academy and military topographical school.

2. The committee on mobilization, which is presided over by the chief of the chief staff and numbers 11 members.

3. The publication of the two official military periodicals—"Russki Invalid" and "Wajenny Sbornik."

4. The general archives, library, and military printing office.

5. The "chancellery" which deals with the personnel of the chief staff, makes the periodical reports on same and attends to matters of finance and matériel relating to the chief staff.

6. The courier corps, which furnishes confidential carriers of dispatches.

(f) The artillery department, which is charged with the administration and direction of artillery matters and the armament of the army. It is under the direction of a grand master of ordnance assisted by 10 generals. The department is divided into the central office and 7 sections as follows: (a) Personnel, (b) arsenals, (c) fortresses, (d) matériel, (e) powder factories, (f) accounts, and (g) correspondence.

The persons employed number 6 officers, 47 officials, and 84 clerks.

The artillery committee numbers 11 members, and employs in its office 19 officers. The printing and drafting establishments employ 2 officers and 23 officials.

The following establishments are under the artillery department: The artillery school of application; the artillery school; the normal artillery firing school; the secondary artillery schools; the experimental polygon, manufactories of arms, the foundry and cartridge factory at St. Petersburg, and the arsenals, powder factories, and fuse factories at Nikolaiew; and the artillery journal. Five inspectors general and some 40 other officers are also under the department.

(g) The engineer department, with the "engineer committee" is presided over by an inspector general of engineers, and divided into 4 sections for personnel, fortresses, military buildings, and accounts, employing 3 officers, 30 officials, and 21 clerks.

The committee consists of 7 members; in its office are 2 officers and 7 officials; the printing and drafting establishments employ 6 officers and 43 clerks.

Under the department are the following establishments: The electro-technic section (10 officers, 1 official, 18 men); the engineer school of application; the engineer school, and

the publication of the engineering journal. There are, besides, 62 other officers, 6 officials, and 30 clerks in the department.

(h) The intendance department comprises the technical committee, 8 sections, and a statistical committee. The technical committee is presided over by the intendant general and consists of 3 permanent members, 13 officials, and 22 clerks; attached to it is a train committee with 5 officials. The 8 sections employ 2 officers, 119 officials, and 153 clerks.

(i) The medical department with its scientific committee as highest consulting authority in all important questions of sanitation, etc., is under the chief military medical inspector. The department is divided into 4 sections—mobilization, military hygiene, supply of medicines, instruments, etc., and accounts.

Under the department are the military medical academy and the "feldsherr" schools (surgical, pharmaceutical, and veterinary). A "feldsherr" is a man trained in the elementary principles of medical science, somewhat like our hospital stewards.

The scientific committee numbers 27 members, the department employs 28 officials and 49 clerks, and further, 5 medical officers and 14 veterinarians are also in the department.

(k) The department of military schools with the "committee on education" is under a director general. The department employs 2 officers, 23 officials, and 44 clerks, and is divided into 3 sections for personnel, studies, and accounts. The committee on education consists of 8 permanent members.

The following establishments, etc., are under the department: The pedagogical museum, the various cadet corps, the military schools for cavalry and infantry, and the secondary military schools at Wolsk and Jaroslaw.

(l) The Cossack department with a "committee on Cossack troops" is under a chief of department who has two assistants, the one for civil, the other for military affairs. The department employs 7 officers, 17 officials, and 69 clerks and is divided into 5 sections, as follows: Organization, military law, internal economy, survey and statistics, and military justice.

The committee is presided over by the chief of the department and numbers 5 permanent members (each representing one of the chief groups of Cossacks—Don, Caucasus, Orenburg, Siberia, Transbaikal, and Amoor) and 3 temporary members representing the Don, Ural, and Orenburg Cossacks. The Cossack "junker" schools are under the department.

(m) The department of military justice is under a military attorney general. The department serves as chancellery to the military supreme court and prepares and transacts all matters to be laid before that body with reference to military justice; 25 officials and 51 clerks are employed. Under it are the military law faculty and the territorial military courts.

In addition to the foregoing the following additional departments are under the war ministry: The chancellery of the Alexander committee for the wounded; the department of the inspector general of cavalry; the department of the inspector of musketry; the department of the orthodox clergy, and the department of military beneficent institutions.

VIII.—ADMINISTRATION.

For the purpose of administration the empire is divided into 13 military districts—Petersburg, Finland, Wilna, Warsaw, Kiew, Odessa, Moscow, Kasan, Caucasus, Turkestan, Omsk, Irkutsk, and Amoor, and the two military territories of the Don and Transcaspia. These districts are commanded by generals appointed to the command by the Emperor. They have under them all troops of all kinds, military establishments, and administrative

authorities within their districts. In the military districts of Warsaw, Finland, Caucasus, and the five Asiatic districts the commander is at the same time the head of the civil government. Some of the commanders have an assistant given them of the rank of lieutenant general. The troops in the district may be divided into several categories, as: Troops pertaining to army corps or divisions; active troops not pertaining to such organization; reserve troops, and fortress troops.

The commanding general of the military district has a personal and general staff, the personal staff consisting of three or four aids-de-camp and some orderly officers.

The administration is carried on through the following organs:

(a) The district staff, the chief of which is a general officer assisted by a colonel of the general staff and other officers. The chief of the staff has supervision over the "junker" schools within the district and may inspect all troops within the same limits by order of the governor. The district staff deals with all matters relating to the troops and is usually divided into four sections as follows: (1) Tactical section, dealing with instruction, movements, and location of troops; (2) inspection section, dealing with personnel and effectives; (3) intendance section, dealing with the interior administration and subsistence of troops; and (4) the mobilization section, dealing with matters pertaining to mobilization and transport of troops. Sometimes there is a fifth section for medical affairs. Under the district staff there is also, in the cases of the Kasan, Omsk, and Amoor districts, a Cossack section. The staff has, moreover, a printing establishment and archives; some districts have a topographical section, in the Caucasus even a historical section.

(b) The district intendance department, presided over by the district intendant, furnishes supplies of all kinds except those furnished by the artillery and engineer departments, to the troops and all military establishments. The department is divided into 3 sections of equipments, supplies, and pay and allowances respectively. It prepares annual estimates for submission to the military council of the district, which forwards it to the superior war council.

(c) The district artillery department is under a lieutenant general as chief of artillery, to whom all artillery troops not belonging to army corps, and all establishments of artillery not under the direct orders of the war ministry are directly subordinated, *i. e.*, the reserve artillery, the fortress artillery, and, in case of war, the depot artillery. The department is charged with providing the troops and fortified places with arms, ammunition, and artillery matériel.

(d) The district engineer department, presided over by a chief engineer, is charged with the care of fortresses, military buildings, technical establishments, etc. The fortress engineer administrations are subordinated to the district engineer department, but not the engineer field troops. The department is divided into 4 sections.

(e) The district medical department is charged with the supervision of all military medical establishments and the medical service and provides troops and establishments with medicines and prescribes rules of military hygiene, and sanitary police regulations.

(f) The district military court deals with matters beyond the jurisdiction of the lower courts.

(g) The district military council is presided over by the commanding general and consists of 7 members, viz, the assistant of the governor, the chiefs of artillery, engineers, and staff, the intendant, and a member nominated by the war ministry. The council deals with economical matters.

IX.—LOCAL ADMINISTRATION.

In addition to the military districts the territory of Russia is also divided into 26 "local brigade" districts, and 563 "military circles."

THE LOCAL BRIGADE DISTRICT.

The local brigade district is commanded by a general officer who is directly subordinated to the governor of the military district in which the brigade is located and has the powers of the independent division commander. He has charge of all troops within his district not belonging to army corps or specially assigned to the several branches, such as train battalions, depot and reserve and local troops and authorities, escort detachments, disciplinary corps, military prisons, etc. On mobilization he superintends the operation as carried out by the circle commanders under his control.

The staff of the local brigade commander consists of a field officer of the general staff and 2 other officers, which allowance is increased in the larger and more important brigade districts.

THE MILITARY CIRCLES.

The commander of a military circle is usually a field officer and directly subordinated to the commander of the local brigade to which the circle belongs. He has charge of all affairs relating to recruiting, depot troops, and mobilization, besides having charge of local and depot troops themselves as indicated in the case of the local brigade commander. Thus he keeps the rolls of the furloughed class and *Opoltchenie*, and has to see that the supplies of clothing and equipment required for organizations to be formed within his command are on hand. To 43 of these circles a special detachment of 1 noncommissioned officer and 9 men is attached to take care of the depots of clothing and arms.

FORTRESS ADMINISTRATION.

Another kind of local administration is the fortress administration. At the head of the administration of the fortress is the "fortress commander," who is directly subordinated to the governor of the military district within which his fortress lies. His powers depend on the rank of the fortress he commands; in the fortress of the first class his powers are those of a corps commander, in one of the second and third classes of a division commander, in a fortress of the fourth class those of a regimental commander. This refers only to such troops, establishments, etc., as pertain to the fortress; as regards other troops and establishments he has only the powers of a "senior officer present." On the declaration of the state of siege his powers become those of the independent corps commander. He is responsible that the place is in proper condition and may inspect the troops quartered in it once a year.

The fortress administration acts through 4 organs in time of peace, viz, the fortress staff, the fortress artillery department, the fortress engineer department, and the fortress intendant department;

To which are added in time of war the fortress treasure chest and the fortress military court.

The fortress staff is presided over by a general staff officer whose rank varies with the rank of the fortress, and is divided into 3 sections, viz, the command section, the troop section, and the medical section, and includes the fortress clergy, carrier-pigeon station, fortress gendarmerie, and fire brigade.

Upon the declaration of a state of siege a "fortress council" is formed, consisting of the commandant, the chiefs of the artillery, engineer, and intendance departments, and the senior troop commander on the spot.

X.—COMMAND OF TROOPS.

It has been stated above that the supreme command of the army is vested in the Emperor. In time of war the several army corps are combined into armies, the armies being commanded each by a "superior army commander" appointed by the Emperor, and a number of armies operating in the same theater by a "commander in chief" also appointed by the Emperor. If the Emperor himself is present and assumes command, the heretofore commander in chief becomes "the chief of his majesty's staff."

The imperial headquarters or that of a commander in chief is divided into 3 sections :

1. The section of "the quartermaster general to the commander in chief," which deals with matters relating to the operations.
2. The section of "the general of the service to the commander in chief," which deals with matters of personnel, strength, equipment, and all kinds of supplies of the army.
3. The railway section, which has the general direction of railways and distribution of the means of communication among the several armies.

THE SUPERIOR COMMAND OF AN ARMY.

The superior command of an army is divided into 8 ordinary and as many secondary sections, viz :

1. The department of the quartermaster general.
2. The department of the general of the service.
3. The department of military communications.
4. The field intendance department.
5. The field artillery department.
6. The field engineer department.
7. The chief military chest.
8. The field control department.

Of these 8 departments the first 3 are under the chief of staff, and form the field staff, the last 5 are directly subordinated to the superior army commander.

The secondary sections are as follows :

1. The office of the field staff.
2. The field hospital department.
3. The field medical department.
4. The field etappen department.
5. The road department.
6. The field post and telegraph department.
7. The field department of army transportation.
8. The red-cross society.

The 1st is under the chief of staff, the 2d, 3d, and 8th under the general of the service, as are also the commandant of headquarters, the army judge advocate, and the field clergy ; the remaining 4 sections are under the chief of the military communications.

The superior army commander is subordinated to the commander in chief alone and has extraordinary powers. The commanding generals of military districts and all other commanders and all the troops within the territory covered by the army are under his orders.

THE COMMAND OF THE ARMY CORPS.

The corps command consists, in time of peace, of the corps staff, the chief of artillery, and the corps surgeon;

And in time of war of the following additional officers: The chief engineer with an assistant, the corps intendant with 8 officials, the corps paymaster, the corps controller with 4 officials, and the military court of the corps with 5 officials.

In time of peace the corps staff consists of the chief of staff, who is a general officer of the general staff; 2 superior adjutants, and 2 general staff officers for special duties;

And in time of war of the chief of staff, 2 superior adjutants, 3 general staff officers for special duties, 1 topographical officer, 1 train commander (commands headquarters train), and 1 "corps commandant" (provost).

The chief of artillery is a lieutenant general and subordinate to the corps commander alone. In time of war he can give orders to artillery attached to infantry and cavalry divisions only with the consent of the corps commander.

The headquarters guard in time of war consists of half a sotnia of Cossacks from the furloughed class.

THE COMMAND OF THE DIVISION.

The divisional commander is directly subordinated to the corps commander if the division belongs to an army corps; if the division is independent, the divisional commander is directly subordinated to the governor of the district. His staff consists of a chief of staff (colonel of the general staff), two senior adjutants, and one surgeon; to which is added in time of war a divisional intendant, and, if the division is an independent one, also a divisional engineer and divisional controller.

THE COMMAND OF THE BRIGADE.

The commanders of independent brigades have the powers of divisional commanders. The ordinary cavalry and infantry brigades have no offices of their own and simply forward to their superiors what comes to them from their subordinates. The brigade commanders are responsible for the training and discipline of the regiments of the brigade, and inspect them. All matters regarding interior economy, requisitions, etc., go from the regiments directly to the divisional commanders.

THE COMMAND OF THE REGIMENT.

The commands of the regiment, independent battalion, battery, or park form the base of all troop administration. The commands differ merely in the composition of their staffs, the regulations for the transaction of business being alike throughout. In addition to two or three field officers the regimental staff consists of—

1. The officer of the administration, one of the field officers selected by the colonel and confirmed by the corps commander. He supervises the entire business of the regimental administration and is a bonded officer.

2. The regimental adjutant, who has charge of matters pertaining to personnel and troops, and works out the plan of mobilization.

3. The accountant, who attends to correspondence and bookkeeping in administrative matters, and is usually an official.

4. The regimental paymaster and quartermaster, who is responsible for the receipt, preservation, and issue of all money, clothing, and equipment, provisions and forage, barrack and hospital effects.

5. The ordnance officer, who is responsible for the receipt and issue, safe-keeping and proper treatment of arms and ammunition, and superintends the target ranges and regimental armorers.

6. The commander of the company of noncombatants, who commands that company and the regimental train and is in charge of all shops except that of the armorers.

7. The hospital officer, who superintends the administration of the regimental hospital and sees to the messing of the sick and attendants

8. The regimental surgeon, who supervises the medical service of the regiment as exercised by the battalion surgeons.

9. The regimental chaplain who conducts divine service and keeps the regimental lists of births and deaths of those belonging to the orthodox church.

10. The officer in charge of the markers, who is responsible for their proper posting during drill.

XI.—THE GENERAL STAFF.

The general staff of the Russian army has no fixed establishment, it being merely prescribed what posts must be held by officers of the general staff, what posts may be held by officers of the general staff, and what other officers, not pertaining to the real general staff, may be accounted as general staff officers. The entire general staff, therefore, consists of the real general staff and officers accounted as general staff officers. All these officers may be classified as follows (Schellendorff, "The Duties of the General Staff"):

"(a) The chiefs of the military district staffs, and officers holding appointments on the establishment of the general staff, either with troops or in administrative departments.

"(b) Military attachés abroad, professors and instructors in the three military academies (general staff, artillery, and engineer academies), and chiefs of the war and 'junker' schools.

"(c) Aids-de-camp to the Emperor, aids-de-camp of members of the imperial family, or officers attached to their households, aids-de-camp to the commander in chief or war minister, or officers attached to them, and aids-de-camp of the chief of the chief staff.

"(d) Officers holding appointments on the establishments of the chief administrative departments of the war ministry, officers permanently or temporarily attached to other ministers or to the war and 'junker' schools, and officers serving with the military government of the Caucasus, provided they have served at least three years on the general staff.

"(e) Officers holding high appointments in the army, such as officers commanding the troops in the military districts, officers commanding divisions, heads of administrative departments in the war ministry, and directors of military gymnasia.

"The uniform of the general staff is only worn, however, by generals belonging to the general staff, field or other officers shown under (a) and (b), and general staff officers temporarily attached to other offices, etc. All other officers belonging to the general staff wear the uniform of their rank and regiment.

"A certain number of captains are besides attached to the general staff. These are candidates for staff employment and act as a reserve in case of war."

The list of general staff officers for 1874 contained—

Generals	28
Lieutenant generals	100
Major generals	118
Colonels	174
Lieutenant colonels	147
Captains	137
Staff captains	35
Total general staff officers	734

Leaving out of consideration mere aids-de-camp and category (c), the remaining officers of the general staff (in the Russian sense of the term) may be classified according to the duties performed into (1) the chief staff, (2) the staff attached to troops, and (3) general staff officers on special duty.

THE CHIEF STAFF.

The functions of this staff have been detailed in connection with the war ministry, and but little remains to be stated. In contradistinction to other European general staffs, the chief of the chief staff is the subordinate of the war minister, and does not hold the same relations to the sovereign as does for instance the chief of the German general staff to the German Emperor. On the other hand the scope of the duties incumbent on the chief of the chief staff is more extended.

The duties of the chief of the chief staff may be briefly stated to consist in keeping the general staff up to the requirements of the time and in superintending the training of the general staff and topographical corps, and the working of the staff academy and war schools. Appointments and transfers to, and promotion in, the general staff are regulated by him. The personnel of the chief staff numbers 195 officers, of which, in 1892, but 32 were members of the actual general staff.—(Schellendorff, "The Duties of the General Staff.")

THE GENERAL STAFF ATTACHED TO TROOPS.

This category of officers includes general staff officers serving with troops and belonging either to the real general staff or entitled by their position to be accounted general staff officers. The subjoined table extracted from "The Duties of the General Staff" exhibits the number and grades of officers thus employed:

GENERAL STAFF OFFICERS ATTACHED TO TROOPS.	General officers.	Field officers.	Officers below the rank of field officers.
1. The administrative staffs of military districts	19	65	37
2. The administrative staffs of territories in Asiatic Russia		8	9
3. Army corps staffs	20	21	40
4. Divisional staffs		70	70
5. Five army brigades, the native brigade of the Caucasus, the 1st and 2d East Siberian rifle brigades, infantry reserve brigades Nos. 42, 43, and 44, and the reserve native brigade of the Caucasus, 1 field officer each		12	
6. The 4th Turkestan Brigade			1
7. The command of the army of Finland		1	
8. The army of the Don		1	1
9. Fortress staffs	4	23	11
10. The staff of local troops in the Caucasus		1	
11. The administrative staffs of local brigades		22	
Total	43	224	169

GENERAL STAFF OFFICERS ON SPECIAL DUTY.

According to Schellendorff the following general staff officers were on special duty in 1892:

1. With the military government of the Cossacks (mobilization section), 1 general officer and 2 field officers.
2. At the cavalry officers' school, 1 field officer as member of the committee.
3. At the Nicolas general staff academy, 1 general, 1 field officer as director, 6 field officers as inspectors, 9 general officers, and 3 field officers as instructors.
4. At other military training establishments, 1 lieutenant general, 3 major generals, 11 colonels, and 10 lieutenant colonels.
5. On regimental duty with troops, 1 adjutant general, 1 lieutenant colonel, and 25 captains.
6. On duty as railway line commissioners, 5 colonels and 9 lieutenant colonels.

XII.—ORGANIZATION.

ARMY CORPS.

There are in all 22 army corps which in time of peace are composed of infantry, cavalry, and artillery, and do not comprise the fortress artillery, mortar regiments, train battalions, railway, sapper, and rifle brigades, except that of the guard; independent of the corps organization there are 1 infantry and 5 cavalry divisions. The normal peace composition of the army corps comprises 2 divisions of infantry and 1 division of cavalry. The guard corps consists of 3 infantry and 2 cavalry divisions and a rifle brigade; the grenadier corps consists of 3 grenadier divisions and 1 cavalry division; the Caucasian corps consists of 1 Caucasian grenadier and 2 infantry divisions and 2 cavalry divisions. The 21st infantry division is not attached to any army corps, nor are the 13th and 15th cavalry divisions, 1st Don-Cossack division, 2d combined Cossack division, and the Caucasian cavalry division.

WAR FOOTING.

The army corps on a war footing consists of 2 infantry divisions, 1 cavalry division, 1 mobile artillery park, 1 sapper battalion, 2 sections of the flying engineer field park, half a pontoon battalion, 1 train battalion, and 1 section of horse depot.

The war strength is as follows:

Combatants, 1,010 officers and 41,097 men; noncombatants, 200 officers and 5,637 men; total, 1,210 officers, 46,734 men, 108 guns, 15,821 horses, and 3,366 wagons.

DIVISION.

There are 48 divisions of infantry, viz, 3 of the guard, 4 of grenadiers, and 41 of the line. The normal infantry division consists of 2 brigades of 2 regiments of 4 battalions each, and 1 brigade of artillery of 2 divisions of 3 batteries of 8 guns each; total, 16 battalions and 48 guns.

Mobilized, the infantry division consists of 2 infantry brigades of 2 regiments of 4 battalions each, 1 artillery brigade, 1 flying artillery park, and the division train consisting of the general transport, provision, and sanitary sections. The strength is as follows:

Combatants, 388 officers and 17,636 men; noncombatants, 70 officers and 1,751 men; total, 458 officers, 19,387 men, 48 guns, 3,777 horses, and 976 wagons.

XIII.—INFANTRY.

The infantry consists of—

	<i>Battalions.</i>
12 regiments of the guard (4 battalions each)	48
16 grenadier regiments (4 battalions each)	64
165 line regiments (4 battalions each)	660
24 rifle regiments (2 battalions each)	48
Rifle battalions	42
Kuban Cossack battalions	6
Transbaikal battalions	2
Turkestan battalions	20
West Siberian frontier battalions	8
East Siberian frontier battalions	10
Reserve battalions	144
Fortress battalions	81
Total	1,088

REGIMENT.

The infantry regiments of the guard, grenadiers, and line are grouped four in a division, leaving one odd regiment. The regiment consists of 4 battalions of 4 companies each, and a noncombatant company. On mobilization the regiment forms a depot battalion.

	PEACE STRENGTH.		WAR STRENGTH.	
	Officers.	Men.	Officers.	Men.
Combatants	70	1,820	79	8,878
Noncombatants	7	71	7	159
Total *	77	1,891	86	4,037

* Also 86 wagons and 156 horses.

THE RIFLES.

The rifles are light infantry, not attached to any particular army corps, except the brigade of rifles of the guard corps, and are composed of—

	<i>Battalions.</i>
1 brigade of rifles of the guard	4
5 brigades of rifles of the line (4 regiments each)	40
1 brigade of Finland rifles (4 regiments)	8
1 rifle brigade in Caucasus	4
1 native Caucasus rifle brigade	4
2 Amoor rifle brigades (5 battalions each)	10
1 Turkestan rifle brigade	4
2 Transcaspian rifle brigades	8
Finland rifle battalions	8
Altogether 24 regiments and 42 independent battalions.	

The strength of the rifle battalions depends on their location, the lowest establishment being 22 officers and 528 men, while the East Siberian battalions number 24 officers and 1,020 men. The peace strength of the line regiment is 35 officers and 1,221 men, of the Finland regiment 46 officers and 955 men. The war strength of the independent battalion is 24 officers and 1,016 men, of the rifle regiment, 39 officers and 2,008 men. Each of the 5 rifle brigades of the line has a division of artillery of 3 batteries.

THE COSSACK BATTALIONS.

The Cossack foot troops consist of 1 brigade of 6 battalions in the Caucasus and 2 battalions in East Siberia.

	PEACE STRENGTH.		WAR STRENGTH.	
	Officers.	Men.	Officers.	Men.
Caucasus Cossack battalion	47	827	26	858
Transbaikal battalion	30	950	24	948

On mobilization these battalions are to be expanded into 14 Kuban and 6 Transbaikal battalions.

THE FRONTIER BATTALIONS.

These troops are stationed in the military districts of Asia as indicated by their names. Their peace strength varies dependent upon their location, the East Siberian battalions having practically a permanent war footing. The ordinary strength is about that of the independent rifle battalion.

THE RESERVE INFANTRY.

The reserve infantry consists of 1 guard battalion of 5 companies, 52 independent reserve battalions of 5 companies, and 28 reserve regiments of 2 battalions, or 8 companies.

In the Caucasus it consists of 4 reserve regiments of 2 battalions, or 8 companies; 4 native reserve regiments of 2 battalions, or 8 companies, and 10 reserve cadre battalions of 5 companies each.

In Asia it consists of 9 reserve cadre battalions of 5 companies.

In time of peace these organizations are recruited like other troops though not quite of the same strength; in time of war the 8-company regiments double the number of their battalions. The 5-company battalions expand their first four companies into a full regiment of four battalions and their fifth company into another regiment of four battalions, the latter being of the second category. Altogether there would result from this process 108 regiments of 433 battalions of the first category and 61 regiments with 251 battalions of the second category. The reserve regiments formed in European Russia and Caucasus are numbered from 200 up, the even numbers being those of regiments of the first category, the odd of the second category. The strength on a peace and war footing is as follows:

	PEACE STRENGTH.		WAR STRENGTH.	
	Officers.	Men.	Officers.	Men.
Reserve regiment	40	829	70	3,994
Native reserve regiment	39	1,021	69	3,905
Reserve battalion	39	545		

FORTRESS INFANTRY.

This category of troops is peculiar to Russia and consists of 1 regiment of 2 battalions and 29 independent battalions, total 31 battalions. As indicated by their name these troops are intended for local defense and are in time of peace stationed in the fortresses they are to defend in war. Each battalion, regimental or independent, has 5 companies and expands in time of war into a regiment of 5 battalions. The peace strength of the fortress battalion is that of the ordinary cadre battalion; the peace strength of the fortress regiment existing in time of peace is 41 officers and 1,555 men; the war strength of a fortress infantry regiment is 85 officers and 4,877 men.

In addition to the infantry described above there are detachments of local infantry in remote parts and convoy commands for escorting prisoners.

INFANTRY MOBILIZATION.

On mobilization each infantry regiment of the guard, grenadiers, and line forms a depot battalion as well as each rifle brigade in Europe and in the Caucasus. No cadres exist for these formations except in the case of 68 regiments. Nine Finland depot companies and 6 Kuban Cossack depot companies are also to be formed.

From the militia 320 battalions of the first and as many of the second category are to be formed as well as 16 militia fortress infantry battalions. There are no cadres existing for these militia battalions.

The infantry available in case of war is therefore grouped as follows:

(a) *Field army*.—193 infantry regiments (772 battalions), 24 rifle regiments (48 battalions), 42 rifle battalions, 38 frontier battalions, and 8 Cossack battalions.

(b) *Field army reserve*.—108 reserve regiments first category (433 battalions), 61 reserve regiments second category and 7 battalions (251 battalions), 8 Finland reserve battalions, and 12 Cossack battalions.

(c) *Fortress infantry*.—30 regiments (150 battalions).

(d) *Depot troops*.—201 depot battalions and 9 companies and 6 Cossack companies.

(e) *Militia*.—656 battalions.

Total, available, therefore, is 2,619 battalions and 15 companies.

XIV.—CAVALRY.

The regular cavalry consists of—

	<i>Squadrons.</i>
4 regiments of the guard of 4 squadrons each.....	16
6 regiments of the guard of 6 squadrons each.....	36
48 Dragoon regiments of 6 squadrons each.....	288
3 regiments (Daghestan cavalry, Finland Dragoons, and Crimean Tartars) of 6 squadrons each.....	18
1 Ossetine division (half regiment).....	2
1 Turkoman division (half regiment).....	2
Independent squadrons.....	2
Total	364

The cavalry composed of Cossacks is as follows:

COSSACK CAVALRY.	PEACE.		WAR.	
	Regiments.	Sotnias.	Regiments.	Sotnias.
Don Cossacks	19	114	54	358
Kuban Cossacks	11	68	33	196
Orenburg Cossacks	6	32	18	104
Transbaikal Cossacks	2	12	4	22
Terek Cossacks	4	26	12	66
Ural Cossacks	3	18	9	50
Siberia	3	18	9	54
Astrachan	1	4	3	12
Amoor	1	3	1	9
Ussuri		3		9
Semiretschensk	1	4	3	12
Irkutsk		1		1
Krassnojarsk		1		1
Total	51	304	146	894

These figures include the independent squadrons.

The cavalry is grouped in 22 divisions, viz, 2 of the guard, 1 of the Caucasus, 4 Cossack, and 15 line divisions. The normal division consists of 2 brigades of 2 regiments each, 1 division of 2 horse batteries, and the divisional train. The line divisions and the Caucasus division consist of 3 regiments of regular cavalry and 1 Cossack regiment; the Cossack divisions are entirely composed of Cossacks. The first division of the guard consists of 4 cuirassier regiments of the guard and 2 Don Cossack regiments of the guard and 1 Ural Cossack sotnia of the guard (all the regiments of the division numbering 4 squadrons or sotnias); the second cavalry division of the guard numbers 6 regiments of 6 squadrons. The 11th line division is also an exception in having 2 Cossack regiments in addition to the 3 dragoon regiments.

The peace strength of the normal squadron is 4 to 6 officers and 161 to 165 men, of the 4-squadron regiment 37 officers and 779 men, the 6-squadron regiment 43 officers and 1,100 men. (These figures include noncombatants.)

On a war footing the strength of the squadron is 4 to 6 officers and 153 to 155 men, of the 4-squadron regiment 35 officers and 673 men, of the 6-squadron regiment 41 officers and 975 men (including noncombatants). Of the Cossack regiments it may be said that they are generally organized similarly to the regular regiments as regards men, but there is some diversity as regards the number of officers.

For each regular regiment there exists in time of peace a cadre which on mobilization forms 2 depot squadrons and a dismounted detachment. These cadres are grouped into 8 brigades. The Cossack regiments stationed in European Russia and Caucasus form a depot squadron each on mobilization.

From the militia 80 squadrons are to be formed on mobilization. The total cavalry force would therefore be as follows:

Field troops, 672 squadrons (364 regular, 308 Cossack).

Field reserve troops, 586 Cossack squadrons.

Depot troops, 160 squadrons (117 regular, 43 Cossack).

Militia, 80 squadrons.

Total, 1,498 squadrons.

XV.—ARTILLERY.

The artillery consists of field artillery and foot artillery.

The field artillery consists of mounted heavy batteries, mounted light batteries, horse batteries, horse mountain batteries, mountain batteries, and mortar batteries.

The subjoined table shows the composition of the field artillery:

ARTILLERY ORGANIZATION.	BATTERIES.					
	Mounted, heavy.	Mounted, light.	Horse.	Horse, moun- tain.	Moun- tain.	Mortar.
8 brigades of the guard.....	12	9				
4 grenadier brigades.....	16	8				
41 line brigades.....	82	164			10	
1 Turkestan field artillery brigade.....	2	4			1	
1 West Siberian field artillery brigade.....		8			1	
1 East Siberian field artillery brigade.....		6				
1 mountain artillery regiment.....					6	
Rifle brigade batteries.....		15				
Mountain batteries of Caucasian rifle brigade.....					2	
1 Finland artillery regiment.....		4				
3 Transcaspian batteries.....		2			1	
HORSE ARTILLERY.						
Guard.....			*6			
Line.....			23			
Turkestan horse mountain.....				1		
West Siberian horse mountain.....				1		
Don Cossack.....			7			
Kuban Cossack.....			5			
Terek Cossack.....			2			
Orenburg Cossack.....			3			
Transbaikal Cossack.....			2			
MORTAR REGIMENTS.						
5 regiments of 4 batteries.....					20	20
2 regiments of 2 batteries.....						4
East Siberian.....						2
Total.....	112	215	48	2	21	26

* Inclusive of 1 Don Cossack guard battery not included in the table among the Don Cossack batteries.

The organization of the artillery is as follows:

1. The 3 artillery brigades of the guard, corresponding to the 3 infantry divisions of the guard, are organized, the first two each into 2 divisions of 3 batteries each, the third into 3 divisions of 3 batteries each.
2. The 4 grenadier artillery brigades, corresponding to the 4 grenadier infantry divisions, consist of 2 divisions of 3 batteries each, except one brigade whose batteries are not organized into divisions.
3. Of the 41 line artillery brigades, corresponding to the 41 infantry divisions of the line, 5 consist of 3 divisions (2 of three, 1 of two batteries), 33 consist of 2 divisions of 3 batteries each, and 3 simply consist of 6 batteries without being organized into divisions.

4. Of the horse artillery that of the guard is organized in 2 divisions of 3 batteries each and attached to the 2 cavalry divisions of the guard; the remainder is partly organized into divisions of 2 batteries and attached to cavalry divisions, 8 of the latter being so provided, while others simply have 2 horse batteries, and 2 have but 1.

5. The light batteries of the rifles are organized into 5 divisions of 3 batteries each and attached, one to each of the 5 rifle brigades of the line.

6. The remainder of the artillery has no higher organization than indicated in the table.

In addition to the above there exist in time of peace 6 reserve artillery brigades of 6 batteries each, 1 reserve cadre battery, and 2 depot batteries, total 39 batteries, which on mobilization expand into 128 field reserve batteries and 52 depot batteries. From the militia 80 militia batteries would be formed.

On mobilization the following ammunition columns and trains are formed: "Flying" parks, "mobile" parks, "local" parks, mobile pyrotechnic laboratories, mobile artillery workshops, first artillery reserve, and siege trains. (For details of these establishments see "Special Train.")

ARMAMENT OF FIELD BATTERIES.

	<i>Guns.</i>
Heavy field batteries (8 guns each, caliber 4.2-inch)	112
Light field batteries (8 guns each, caliber 3.42-inch)	215
Horse batteries (6 guns each, caliber 3.42-inch)	48
Mountain batteries (8 guns each, caliber 2.5-inch)	23
Mortar batteries (6 guns each, caliber 6-inch)	26

STRENGTH.

	PEACE FOOTING.			WAR FOOTING.		
	Officers.	Men.	Guns.	Officers.	Men.	Guns.
Heavy field battery	6	207	4	6	259	8
Light field battery	6	179	4	6	227	8
Mountain battery*	6	149	4	6	300	8
Brigade staff	7	25	-----	7	81	-----
Horse battery†	5	173	6	5	198	6
Cossack horse batteries	5 to 10	148 to 210	6	5	245 to 324	6
Mortar battery	5	175	6	5	226	6
Heavy reserve battery	11	212	2	6	241	8
Light reserve battery	11	192	2	6	207	8
Cadres of "flying" park†	3 to 5	75 to 87	-----	-----	-----	-----

* Varies in the different kinds of mountain batteries.

† Horse mountain batteries somewhat stronger.

‡ Cadres for "mobile" parks smaller.

FOOT ARTILLERY.

The foot artillery consists of 56 fortress artillery battalions, named after the fortresses in which they are stationed and which they are to defend (53 of 4 companies each, 1 of 5 companies, and 2 of 3 companies); 3 siege artillery battalions of 4 companies each; 12 independent fortress companies; and 5 sortie batteries (in war, 16).

From the militia 10 battalions of militia fortress artillery would be formed.

STRENGTH.

	PEACE FOOTING.			WAR FOOTING.		
	Officers.	Men.	Guns.	Officers.	Men.	Guns.
Company	8	118	-----	5	329	-----
Sortie battery	11	126	2	5	180	8
4-company battalion	-----	-----	-----	21	1,818	-----

The total artillery force of Russia would therefore amount to 424 field batteries, 128 field reserve batteries, 16 sortie batteries, 52 depot batteries, and 80 militia batteries, making a total of 700 batteries with 6,310 guns, 247 fortress and siege companies, and 10 militia fortress artillery battalions.

XVI.—ENGINEERS.

The engineers consist of field and fortress engineers.

(a) THE FIELD ENGINEERS.

The field engineers consist of—

(a) 28 battalions, 1 company, and 2 reserve battalions of sappers, viz, 1 battalion of sappers of the guard, 1 grenadier battalion of sappers, 21 battalions of sappers, 2 reserve sapper battalions, 1 Turkestan sapper battalion, 1 Transcaspian sapper battalion, 1 East Siberian sapper battalion, and 1 West Siberian sapper company;

(b) 8 pontonier battalions;

(c) 7 railway battalions (1 single battalion, 3 battalions united in a brigade, 2 Transcaspian battalions, and 1 Ussuri battalion);

(d) 6 field engineer parks;

(e) 1 balloon detachment.

(a) *The sapper battalions.*—These sapper battalions are composed as follows:

Twenty-four sapper battalions of European Russia, Caucasus, Turkestan, and East Siberia consist of 3 sapper companies and 1 telegraph company each; 1 sapper battalion of the guard consists of 1 telegraph and 4 sapper companies; 2 Transcaspian battalions consist each of 1 telegraph and 2 sapper companies; 1 West Siberian sapper company has a telegraph section attached to it; 2 reserve sapper battalions have but 3 sapper companies.

In time of peace the sapper battalions and reserve battalions of European Russia and the Caucasus are organized in 7 sapper brigades; the sapper troops in Asia are independent and under the orders of the commander of the engineers and the chief of the engineer department of their military districts.

In time of war the brigades are dissolved and the battalions are assigned to the army corps, the commander of the sapper battalion becoming the chief engineer of the corps, 1 sapper company being attached to each division, and 1 to the corps. At the same time a light bridge train is assigned to each of 2 sapper companies of each battalion.

The telegraph company on mobilization is divided into 3 sections—2 pole sections with 27 kilometers of wire and 1 cable section with 37 kilometers of cable. Each section is capable of establishing 4 telegraphic and 2 optical stations. The Asiatic companies consist of 4 pole sections.

On mobilization the sapper battalions do not form cadres for depot or reserve formations, this task being left to the 2 reserve battalions. The companies of these battalions are doubled

in case of war, thus producing 12 companies. Each reserve battalion in addition furnishes a cadre for the formation of 2 depot sapper battalions, each consisting of 1 mining, 1 telegraph, and 4 sapper companies. It is evident that this organization is incomplete and that further changes are to be expected in the near future, 12 reserve and 24 depot companies not being sufficient to provide technical troops for all the forces Russia can place in the field.

(b) *The pontonier battalions.*—The pontonier battalions, consisting of 2 companies each, are in time of peace attached to the sapper brigades and distributed among the army on mobilization. The bridge train consists of 100 four-horse wagons and bridge matériel for building a pontoon bridge of from 215 to 311 meters and a trestle bridge of 47 meters. The bridge train may be divided into 4 sections, each capable of throwing a pontoon bridge of 60 meters. This establishment also seems insufficient for the needs of the Russian forces.

(c) *The railway battalions.*—The first railway battalion is attached to the first sapper brigade, the second, third, and fourth battalions form the Baranowitschi railway brigade, and the remaining 3 battalions are in Asia (see above). The battalion consists of 1 cadre, 2 construction, and 2 traffic companies. In time of war the battalion consists only of 2 construction and 2 traffic companies; the cadre companies serve to form reserve battalions.

(d) *The engineer park.*—The field engineer parks exist in time of peace and are subordinated to the sapper brigades. On mobilization the parks are distributed among the corps and united with the sapper battalions of the corps under the command of the chief of the sapper battalion. The parks are intended to replenish the engineering matériel of the field armies, and furnish additional tools on emergency, such as the intrenchment of a position, and are accordingly divided into corps sections, each of which is capable of supplying 2 infantry divisions, 1 cavalry division, and 1 sapper battalion. The first four field engineer parks are divided each into 5, the fifth in 3, and the Caucasian in 2 corps sections.

(e) *The balloon detachment.*—For the field there exists in time of peace only an "instructional balloon park," which in war will probably be expanded. Its peace strength is 7 officers and 88 men, 4 horses and 2 wagons, in time of war 15 officers, 215 men, 4 horses, and 2 wagons.

STRENGTH.

The sapper battalions and telegraph companies having but recently been reorganized, their strength in peace and war could not be ascertained. The strength of the other organizations is as follows:

PEACE FOOTING.

	Officers.	Men.	Horses.
Pontoon battalion	14	277	12
Railway battalion	28	628	10
Field engineer park	2	20	-----

WAR FOOTING.

	Officers.	Men.	Horses.	Wagons.
Pontoon battalion	15	591	122	495
Railway company	5	261	-----	2
Railway battalion	80	1,112	42	85
Field engineer park	8	200	86	287

(b) FORTRESS ENGINEERS.

The fortress engineers consist of 12 companies of fortress sappers, 4 detachment cadres of fortress sappers, 9 torpedo companies, 2 river mining companies, 6 fortress telegraph sections, 4 fortress balloon sections, 2 siege engineer parks, and 6 carrier pigeon establishments.

(a) *Fortress sapper companies.*—Each company consists of 5 officers, 130 men and 2 horses, and on mobilization expands into 2 companies.

(b) *Detachment cadres.*—Each cadre consists of 2 officers and 35 men, and on mobilization expands into a half company.

(c) *Torpedo companies.*—The torpedo companies are named after the coast fortresses they are to defend. Two consist of 7 officers and 174 men, the remaining seven of 6 officers and 98 men.

(d) *River mining companies.*—These two companies consist each of 7 officers and 250 men, and on mobilization are increased by 6 men from the train. They are organized for the defense of the Vistula and Narew.

(e) *Fortress telegraph sections.*—These organizations manage the service of communication by telegraph and visual signaling between the fortress, its outlying forts, and all other points within the zone of the fortress. The sections are of three categories, dependent upon the fortress where they serve.

Sections of the first category consist of 4 officers and 68 men, and are provided with matériel for a line of 64 to 106 kilometers and 20 to 30 stations.

Sections of the second category consist of 3 officers and 81 men, with a length of line of 26 to 64 kilometers and 15 to 20 stations.

Sections of the third category consist of 2 officers and 29 men with a length of line of less than 26 kilometers and less than 10 stations.

(f) *Fortress balloon sections.*—Each section consists of 3 officers and 52 men in time of peace; the strength of the mobilized section is 5 officers and 136 men. All officers belonging to the general staff of the fortress are trained in making observations from the balloon. Each section has the matériel for 6 captive and 3 free balloons and other considerable matériel.

(g) *Engineer siege parks.*—For each of the two engineer siege parks there is provided a park company, which in time of peace consists of 2 officers and 30 men, and in time of war of 5 officers and 256 men. Each park is divided into 4 sections, each complete in matériel for the conduct of a siege.

(h) *Carrier pigeon establishments.*—The carrier pigeon sections are each divided into four classes corresponding to the number of directions of flight, and have 200 pigeons for each class.

XVII.—TRAINS.

There exist in time of peace five train cadre battalions, four of which have 4, and one has 2 companies, total 18 companies, each company being divided into five sections. These cadre battalions are under the command of the local brigades and under the administration of the chief staff.

In time of war these 18 companies expand into 18 battalions of 5 sections each, total 90 sections. The sections may be either wagon or pack trains, and subdivided either in two or four subdivisions.

The peace strength of the train battalion is 15 officers, 399 men, 80 horses, and 40 wagons.

The war strength of a train battalion of 5 two-horse wagon sections is 28 officers, 1,165 men, 2,041 horses, 918 wagons, of which 3 officers, 10 men, 11 horses, and 3 wagons form the staff.

A pack train consists of 5 officers, 204 men, and 362 horses.

TROOP TRAINS.

Troop trains are divided into regimental trains and divisional trains.

The regimental train carries the equipment, subsistence, and ammunition the troops can not do without even in near presence of the enemy. Each organization has its own wagons which together form a train, an integral part of the regimental train. The latter is divided into two sections, the first of which may be called the fighting train and follows its organization immediately; it consists of the ammunition wagons, hospital train, and led horses. The second section may be called the camping train and marches some 5 miles in rear of the organization to which it belongs.

The division train is provided for the infantry and cavalry divisions and the rifle brigades and marches a day's march in rear of the division to which it belongs. It is divided into three sections as follows: (1) The general transport section; (2) the provision section, and (3) the hospital section.

(1) *The general transport section.*—This section numbers 6 officers, 140 men, 262 horses, 45 wagons and transports, intrenching tools, pack saddles, clothing, etc. The section is divided into six subsections, the first four for the 4 infantry regiments of the division, the fifth for the artillery brigade, the sixth for the staff and divisional cavalry. Reserve horses are taken along at the rate of 10 for each regiment and battery, and assigned to the sixth subsection.

(2) *The provision section.*—The provision section is divided into an "issue transport" and a "reserve transport."

The issue transport numbers 5 officers, 214 men, 506 horses, and 150 wagons, and carries 4 days' hard bread and groats, 8 days' salt, and 10 days' tea and sugar for the division. The transport is subdivided into 6 subsections like the general transport, *i. e.*, four for the 4 infantry regiments, one for the artillery brigade, and one for the staff and all other troops.

The reserve transport numbers 6 officers, 233 men, 565 horses, and 165 wagons, and replenishes the issue transport.

(3) *The hospital section.*—The hospital section consists of 1 divisional hospital and 2 mobile field hospitals.

The divisional hospital numbers 7 officers (among them 5 surgeons), 285 men, 82 horses, and 29 wagons inclusive of a bearer company of 1 officer and 217 men. It is intended to establish the chief dressing station on the battlefield and dispatch the wounded to the nearest hospitals.

Each mobile hospital numbers 9 surgeons, 4 sisters, 107 men, 67 horses and 25 wagons, and is intended for the care and cure of the sick and wounded. It has accommodations for 10 officers and 200 men.

The trains of the cavalry divisions and rifle brigades are similarly organized, but are smaller and not subdivided into subsections.

XVIII.—SPECIAL TRAINS.

ARTILLERY TRAINS.

The artillery trains are the following: (a) "Flying" parks, (b) "mobile" parks, (c) "local" parks, (d) mobile pyrotechnic laboratories, (e) first artillery reserve, (f) mobile artillery workshops, and (g) siege trains.

(a) *Flying artillery parks*.—There are in existence in time of peace cadres for 48 parks for the 48 infantry divisions, 7 parks for the 5 line and Caucasian and Finland rifle brigades, 1 mountain artillery flying park, 3 parks for mortar regiments, and 1 East Siberian park. The cadres are as follows:

	Officers.	Men.	Horses.
Field park or mortar park.....	5	75	6
Rifle park.....	4	75	4
Finland rifle park.....	4	87	6
Mountain park.....	3	87	4

On mobilization the flying parks expand into park brigades, the brigade having three parks, though some have four and others two. They carry infantry ammunition in the first, and artillery ammunition in the second and third parks, and constitute what in other armies are called the ammunition columns.

The brigade staff consists of 6 officers, 15 men, 17 horses, and 6 wagons. The personnel of the parks themselves varies greatly, depending on the size and kind of park.

(b) *The mobile park*.—There exist in time of peace some cadres for the following "mobile parks" to be mobilized in case of war: 79 mobile parks for European Russia and the Caucasus, 1 mobile half park in the Amoor district, 3 mobile parks for mortar artillery, and 1 section of a mountain mobile park. These trains furnish the second line of reserve ammunition for the field troops, and the first line of reserve ammunition for the reserve divisions of the first and second categories.

(c) *Local parks*.—No cadres exist for these parks, which are only formed on mobilization and whose object is to transport the ammunition stored in the district artillery depots to the field and intermediate ammunition depots. They are assigned to the army at the rate of one to every two infantry divisions. In an army corps therefore there would be two flying parks (one for each division) and one mobile park. Each army would have one local park to every two infantry divisions. The number of these parks is as follows: 84 parks in Europe and the Caucasus, 3 mortar artillery local parks, and 1 mountain artillery local park.

(d) *Mobile pyrotechnic laboratories*.—These establishments are charged with the repair and preparation of ammunition reserves, and are either attached to the ammunition depots or independent. Their number is fixed by the commander of the army. Their strength is 6 officers and 40 men.

(e) *First artillery reserve*.—The object of these establishments is to keep the troops in front in fighting condition by supplying men, horses, harness, ammunition, etc., and they are therefore provided with a certain percentage of artillerymen, horses, harness, artillery carriages, guns, etc.

(f) *Mobile artillery workshops*.—These establishments are usually attached to the first artillery reserve, and intended to make all necessary repairs to guns and other arms.

(g) *Siege trains*.—There are two European siege parks and one Caucasian. Parks Nos. 1 and 2 consist of 12 sections (2 investment, 8 fighting, and 2 reserve sections), and are provided with 424 guns each and 494 carriages; the Caucasian siege train consists of 10 sections (4 investment, 4 fighting, and 2 reserve sections), and is provided with 320 guns.

The cadres of the first two parks consist each of 8 officers and 61 men, of the Caucasian train of 3 officers and 51 men.

The strength of a siege train before a besieged fortress is to consist of 51 officers and 210 men, the guns to be served by 6 fortress battalions.

ENGINEER TRAINS.

(a) *Field engineer trains*.—(See "Field engineers.")

(b) *Siege engineer trains*.—(See "Fortress engineers.")

MEDICAL TRAINS.

Medical trains are of 3 kinds, viz, regimental trains, divisional trains, and military sanitary "transports."

(a) *Regimental medical trains*.—Each infantry regiment has 4 medical store carts and 4 ambulance wagons, each cavalry regiment has 1 apothecary's cart and 2 hospital store carts, and other troops in proportion. They are for the establishment of the "troop hospitals" and establishment of the dressing stations on the battlefield.

An infantry regiment is provided with 16, a cavalry regiment with 6, an independent battery with 4, an artillery brigade with 6, and a park brigade with 4 beds.

(b) *Divisional medical trains*.—Divisional hospital train (see "Troop trains"), and mobile field hospitals (see "Troop trains").

(c) *Military sanitary transports*.—Twenty of these transports are mobilized and assigned as required. They consist of 3 officers, 100 men, 137 horses, and 36 wagons and are capable of transporting 200 sick or wounded. They transport the sick and wounded from the troops to the nearest hospitals, and from the dressing stations to the establishments in rear. On the return journey they carry convalescents. Additional transports may be organized upon the order of the army commander.

HORSE DEPOTS.

Horse depots are established to supply the army with horses. On mobilization a general horse depot is formed to contain a number of horses equal to 10 per cent of all the horses in the field. The general depot is subdivided into sections of 1 officer and 165 men and from 300 to 400 horses. The sections are named after the localities in which the horses are collected.

From the general horse depot "horse depots for the field army" are formed and forwarded as needed, each of the latter class of depots having a staff of 8 officers and 18 men and being divided into sections of 100 horses each.

In addition to all these troops there exists in Russia a body of men which in time of peace serve the civil administration, but become soldiers upon the declaration of war. These troops are called "frontier guards," and are organized in 29 brigades and 3 independent detachments, each numbering about 30 officers, 1,000 men, and 400 horses. They are partially trained as soldiers, participate in the maneuvers of the regular troops, and are inspected by general officers of the army.

XIX.—TOTAL STRENGTH.**PEACE FOOTING.**

The active army numbers about 880,000 of all ranks, to which may be added 30,000 frontier guards.

WAR FOOTING.

The strength of the Russian army on a war footing amounts to about 2,620 battalions of infantry, 1,500 squadrons of cavalry, 700 batteries of artillery with 5,222 guns (exclusive of 3 siege trains containing 1,088 guns), and 120 battalions of engineers of all kinds and fortress artillery.

Von Löbell gives the following war strength of the Russian army (exclusive of local commands and the Caucasian militia):

	Officers.	Men.
Field troops	24, 512	1, 090, 260
Reserve troops	14, 365	788, 450
Fortress troops	3, 834	226, 340
Depot troops	5, 285	300, 412
Militia	10, 334	671, 982
Total	58, 330	3, 077, 394

XX.—PROSPECTIVE WAR STRENGTH.

Taking the annual contingent at 260,000 and deducting 4 per cent from the first, 3 from the second, and 2 from all the following contingents, the army under the present conditions of service and recruitment will eventually be composed of—

	Men.
Active army (5 classes)	1, 189, 000
Reserves (13 classes)	2, 579, 000
Militia (5 classes)	825, 000
Cossacks	825, 000
Total trained men	4, 918, 000
Untrained militia (rough estimate)	8, 000, 000
Grand total	12, 918, 000

SPAIN.

I.—AREA AND POPULATION.

Spain has an area of 504,500 square kilometers, with an absolute population of 17,560,000, or 35 per square kilometer.

II.—AVAILABLE STRENGTH.

According to the latest published statistics on hand the number of young men who, in the year 1894, attained the age of liability to military service was 141,061. There are, however, numerous causes of exclusion from the military service, among which are physical defects or disease, insufficient stature, membership in certain religious orders engaged in public instruction, labor in certain mines, penal sentences of various degrees, etc. Exemptions apply only to service in the active army, and are, for the most part, connected with the support of families. Exemption from active service is also purchasable, the amount to be paid varying from \$300 to \$400, depending on the time when the purchase money is paid. Substitutions and changes of numbers are allowed, but only between brothers. Volunteers are also admitted to the army. Volunteers without bounty may enlist at any time, unless express orders are given to the contrary. Volunteers with a right to bounty are admitted to replace those men who have purchased their exemption, the bounty for the colonial troops being double that for the peninsular army. The time of enlistment for volunteers is four years, but men serving with the colors may volunteer to reenlist for one, two, three, or four years, the restriction being that they must not have passed the age of 45 at the expiration of the reenlistment.

There are no one-year volunteers, in the sense in which that expression is understood in most of the continental services.

Of the available youths of the class of 1894 (40,500) about 0.23 per cent of the whole population, or 28 per cent of the class, were drawn for the active army. The remainder of the able-bodied youths of the class, those who have purchased their exemption and those who have furnished substitutes, together with the "condicionales"* and those who have been exempted from active service for family reasons, are posted to the "depósito," which corresponds nearly to the ersatz reserve.

The total strength of the rank and file of the army was fixed by law for the year 1894-95 at 82,000 and the strength for the year 1895-96 at 84,000. These figures do not include the "guardia civil" (gendarmarie) or the colonial forces.

III.—CONDITIONS OF SERVICE.

The recruiting law provides that military service is obligatory for all Spanish subjects during the period and between the ages determined by the law, and that no one who is able

* The "condicionales" are those who are only temporarily excluded from service on account of temporary physical disability or stature very slightly below the minimum. These youths are subject to reexamination up to the end of the third year.

to bear arms will be excused from serving in the manner and category that the law and the regulations prescribe.

For the peninsular army the duration of this service is 12 years, reckoned from the day the recruits are enrolled in the recruit depots.

Neglecting the time that recruits are in these depots, the youths of each class must serve in one or more of the categories that follow: (1) Active army; (2) active reserve or furlough; (3) ersatz reserve, including the "condicionales;" and (4) second reserve.

THE ACTIVE ARMY.

Recruits drawn for the active army pass 3 years with the colors, after which they pass to the active reserve, where they pass 3 years in the first battalion of the reserve regiment corresponding to their active regiment. They may be called out during this time, for training, either with their regiments or not, as the minister may determine, and for such length of time as he may prescribe. At the end of these three years in the active reserve, they pass to the second reserve, being enrolled in the second battalion of the reserve regiment, where they remain until the expiration of their 12 years. While serving in the second reserve, they may be called out for training by ministerial order, for not to exceed one month in each year.

THE ERSATZ RESERVE (DEPÓSITO).

Recruits who are posted to the "depósito" pass 6 years in it, being subject to an annual review, and to be called out for such training as may be prescribed by the minister. After the completion of this 6 years, they pass to the second reserve, where they pass the remainder of their 12 years' service.

IV.—MILITARY EXPENDITURE.

The war budget for 1895-96 amounted to \$23,160,000.

V.—THE COMMAND AND STAFF OF THE ARMY.

The constitution of the Spanish Monarchy vests the supreme command of the land and naval forces in the King, but, as in most of the other constitutional monarchies, the ministry is responsible for the royal acts, and the law specifically puts into the hands of the minister of war who is always a general officer, the organization and government of the army and all the military services.

In the administration and direction of the army and the military services, the minister is assisted by the war ministry and the various central dependencies. The latter are mostly independent of the war ministry, and are directly subordinate to the minister himself.

The war ministry consists of (a) a subsecretariat, presided over by a subsecretary, who is a lieutenant general or major general, and chief of staff of the war ministry, and (b) 12 sections, presided over by generals of brigade, except the 12th, which has at its head a divisional intendant.

Among the central dependencies are the direction general of "Carabineros" (customs guard); the directions general of the guardia civil, and of some other corps that do not belong to the army proper, and the depósito de la guerra (war depot).

THE STAFFS OF THE ARMY.

The staffs of the Spanish army may be divided into (a) the general staff (estado mayor general), (b) the staff corps (cuerpo de estado mayor), and (c) the aids-de-camp (ayudantes de campo and ayudantes de órdenes).

(a) *The general staff*.—The whole body of general officers of the army, excluding those who have only assimilated rank, is called the general staff. There are five grades—captain general, lieutenant general, general of division, and general of brigade.

(b) *The staff corps*.—The duties of the officers of the staff corps are to assist the general officers, under whose orders they are, in all matters relative to the organization of the troops and operations in the field. The grades in the staff corps run from brigadier general down to captain.

The “*depósito de la guerra*” is under an officer of the general staff, assisted by a large number of staff officers, and officers of the military administration corps.

In each army corps there is a chief of staff, of the grade of brigadier general, belonging to or coming from the staff corps. The chief of staff is assisted by a number of field officers and officers of the staff.

The officers of the staff corps are appointed from the graduates of the superior war school who have taken honors in the course and who have subsequently distinguished themselves in a course of practical work in one or more branches of the service. Both the war school course and these practical courses last three years, after which the officers are admitted to the staff corps with the grade of captain.

To be admitted to the war school the candidate must be a lieutenant of infantry, cavalry, artillery, or engineers, must have held the grade of officer at least three years, and served at least one year with troops. His age must not exceed 29.

As the army list bears a number of lieutenants as belonging to the staff corps, it would appear that the lieutenants who are pursuing courses of practical work are attached to the corps with their old grades until they are finally admitted with the grade of captain.

(c) *The aids-de-camp*.—These are officers of the personal staffs of general officers, their number and grades depending on the rank of the generals in question. There appears to be no distinction between the “*ayudantes de campo*” and the “*ayudantes de órdenes*.” The latter are found only in the military household of the Sovereign. These officers may be detailed from any arm of the service.

There is also a class of officers forming a separate body, called the fortress staff (*estado mayor de plazas*). These officers are on duty as governors of certain places and fortresses, town majors, and with various subordinate functions similar or connected with those just mentioned. Their grades run from colonel down to second lieutenant.

VI.—ORGANIZATION.

(a) GENERAL.

The territory of the Peninsula is divided into 7 military regions, to each of which an army corps is assigned. The Balearic Isles and the Canary Isles form two captain-generalcies, each commanded by a lieutenant general. The Fortress of Ceuta with its dependencies, and that of Melilla with its own, form two general commanderies, under generals of division, who are directly subordinate to the war minister.

The army corps and the military regions corresponding thereto are commanded by captain generals or lieutenant generals, who are styled general in chief or commander in chief of their respective corps, according to the grade they hold, and captain general of the military region.

(b) THE ARMY CORPS.—PEACE FOOTING.

The army corps is composed of two or three mixed divisions (divisions of all arms), and one corps has a cavalry division. To the headquarters of each corps are attached a number

of units, not depending on any of the divisions, such as cavalry brigades, rifle brigades, regiments of sappers and miners or other engineer troops, and battalions of fortress artillery. There are usually a few units stationed in each army corps region that do not belong to the corps.

(c) THE ARMY CORPS.—WAR FOOTING.

On mobilization for war the composition of the army corps, it is supposed, will remain practically the same as in time of peace, except that the fortress artillery will no longer belong to the corps.

VII.—THE DIVISION.

The divisions, of which there are 15 organized and 1 to be organized, consist in time of peace of 2 brigades of 2 regiments of infantry, 1 regiment of cavalry, 1 regiment of field artillery, 1 company of troops of the military administration, and 1 company of sanitary troops.

One division has, exceptionally, a whole brigade of cavalry.

A half brigade (2 battalions) of rifles may replace a regiment of infantry in the divisional organization, and 4 half brigades are so employed.

Six half brigades of rifles are organized into 3 independent brigades which are attached in time of peace to 3 of the army corps.

On mobilization, the composition of the division remains unchanged.

VIII.—THE INFANTRY.

(a) GENERAL.

The infantry of the permanent army of the Peninsula is organized into 112 regiments, of which 56 are active and 56 reserve, and 20 battalions of rifles grouped into 10 half brigades. Each active regiment of the line consists of 2 battalions of 4 companies each.

There are, in addition, 4 African infantry regiments of 2 battalions of 4 companies each, 2 infantry regiments in the Balearic Islands of 2 battalions of 4 companies, 2 rifle battalions in the Canaries, and 1 disciplinary battalion; in all, 147 active battalions.

(b) STRENGTH.—PEACE FOOTING.

The regiment consists of 49 officers, 2 employees, and 652 men.

The African regiment consists of 57 officers, 2 employees, and 1,200 men.

The regiment of the Balearic Islands consists of 49 officers, 2 employees, and 800 men, one of these regiments having 200 extra men.

The rifle battalion consists of 26 officers, 1 employee, and 358 men.

The rifle battalion of the Canaries consists of 26 officers, 1 employee, and 1,000 men.

The disciplinary battalion stationed at Melilla consists of 29 officers, 1 employee, and an indefinite number of men, estimated at 500.

(c) STRENGTH.—WAR FOOTING.

The regiment consists of 49 officers, 2 employees, and 2,003 men.

The battalion consists of 21 officers, 1 employee, and 1,001 men.

The rifle battalion consists of 26 officers, 1 employee, and 1,001 men.

The African regiment has the same strength as a line regiment; also the Balearic Islands regiment.

IX.—THE CAVALRY.

(a) GENERAL.

The cavalry of the Peninsular army is composed of 8 regiments of lancers, 14 regiments of chasseurs, 2 of hussars, and a squadron of the royal escort, each regiment consisting of 4 squadrons; in all, 113 squadrons. There are, in addition, 1 squadron of chasseurs in the Balearic Islands, and another at Melilla. The reserve regiments in the Peninsula number 14.

In time of peace 13 regiments are grouped into 6 brigades of 2 or 3 regiments each, belonging to the various army corps. The 1st corps has a division of cavalry of 2 brigades attached to it. The remaining 15 regiments are attached to the various army corps headquarters and to infantry divisions. In some of the corps, these last-mentioned regiments are grouped into brigades of instruction. The cavalry troops are subordinate to the commanders of the units—divisions or army corps—to which they are attached, and where the divisional cavalry is united in brigades of instruction, it is subordinate, for purposes of instruction, to the general commanding the cavalry brigade. There is no longer an inspector of the cavalry arm, that office having been abolished in 1893.

(b) STRENGTH.—PEACE FOOTING.

Active regiment, 37 officers, 2 employees, 400 men, and 349 horses.

Squadron, 5 officers, 99 or 100 men, and 82 or 83 horses.

Cadre of a reserve regiment, 8 officers and 6 men.

(c) STRENGTH.—WAR FOOTING.

Active regiment, 40 officers, 2 employees, 602 men, and 541 horses.

Squadron, 5 officers, 150 men, and 130 horses.

Reserve regiment, 39 officers, 602 men, and 540 horses.

X.—THE FIELD ARTILLERY.

(a) GENERAL.

Except in the 1st corps, where an artillery brigade is organized for instructional purposes, the field artillery is not organized into brigades in time of peace. The regiments are distributed with tolerable uniformity at the rate of one regiment to each mixed division, though in some cases the regiments assigned to certain divisions will be found to be detached and serving in the territory of another army corps. Each regiment has a staff and 4 batteries of 6 guns.

In time of war each regiment is to mobilize 2 divisions of 3 batteries of 6 guns each, also 3 ammunition columns.

The artillery is subordinate to the divisional and corps commanders to whose commands it is attached and in addition is under the orders of the chief of artillery of the corps to which it belongs.

There are 14 regiments of field artillery (mounted regiments), and 2 of mountain artillery. Two of the field artillery regiments have, over and above their proper batteries, a horse battery each. These two batteries form the nucleus of a proposed regiment of horse artillery.

This was the official organization of the field artillery down to July 1, 1895, and the *Extracto Mensual de Organización Militar en España*, an official publication issued on

December 1st, 1895, shows no change in the numbers or designations of the regiments. The budget for the year 1895-96, however, shows that it is contemplated to reorganize the field artillery as follows:

	<i>Batteries.</i>
8 mounted regiments, 9-cm. guns (4 batteries each)	12
9 mounted regiments, 8-cm. guns (4 batteries each)	36
1 mounted regiment, 8-cm. guns	3
1 horse artillery regiment, 8-cm. guns	4
2 mountain regiments (4 batteries each)	8
1 mountain regiment	3
<hr/> 17 regiments.	<hr/> 66

The numbers in the old organization were 56 field batteries, 8 mountain batteries, and 2 horse batteries. Of these, 36 batteries, forming 9 regiments, were armed with the gun of nominal 8-cm. caliber (actual caliber 78 mm.), and 20 batteries, forming 5 regiments, were armed with the gun of 9 cm. nominal caliber (actual caliber 87 mm.). The mountain batteries were armed with an 8-cm. mountain gun (actual caliber 78 mm.).

The number of batteries in the two cases is the same, but the kinds of batteries and the grouping into regiments differs considerably in the two cases. The total strength of the artillery arm has been increased by about 150 men.

(c) STRENGTH.—PEACE FOOTING.

As the new organization has apparently not yet gone into effect, the old establishments will be given.

The regiment of field artillery consists of 30 officers, 11 employees, from 287 to 315 rank and file, according to caliber of guns, and from 221 to 229 horses and mules.

The field battery consists of 4 officers, from 71 to 78 rank and file, according to caliber of guns, and from 51 to 53 horses and mules.

The horse battery consists of 4 officers, 89 rank and file, and 83 horses.

The regiment of mountain artillery consists of 31 officers, 399 rank and file, and 166 horses and mules.

The mountain battery consists of 4 officers, 99 rank and file, and 37 horses and mules.

Mules are used for draft animals, except in the horse batteries.

(d) STRENGTH.—WAR FOOTING.

The field battery division consists of 12 officers and 316 rank and file.

The field battery consists of 6 officers and 177 rank and file.

The mountain battery consists of 5 officers and 192 rank and file.

The horse battery consists of 6 officers and 158 rank and file.

XI.—THE FORTRESS ARTILLERY.

(a) GENERAL.

The fortress artillery is organized into the same number of battalions and companies in time of peace and war, is distributed in the various commands according to the necessities of defense, and is subordinate to the same authorities as the field artillery. It consists of 10 battalions, 2 of 6, 7 of 4 companies each, and 1 of 3 companies, and a depot cadre company.

(b) STRENGTH.—PEACE FOOTING.

The 6-company battalions consist of 33 officers, 1 employee, and 536 men.

The 4-company battalions consist of 24 officers, 1 employee, and from 378 to 402 men.

The 3-company battalion consists of 21 officers, 1 employee, and 275 men.

According to the budget for 1895-96, it is proposed to raise another fortress battalion to the strength of 6 companies, making 3 with that establishment, and to raise the 3-company battalion to the establishment of 4 companies. When this change is made, the 6-company battalions will number 530 rank and file each, and the 4-company battalions, 374 each.

(c) STRENGTH.—WAR FOOTING.

The battalion of 6 companies consists of 34 officers and 1,026 rank and file.

XII.—THE ENGINEER TROOPS.**(a) GENERAL.**

In time of peace the engineer troops are grouped by regiments and battalions. There is one regiment with the 1st corps, and 1 battalion with every other corps. There are, besides, other engineer battalions stationed in some of the corps regions without forming part of the corps. In the 1st corps region, the corps regiment of sappers and miners, with the telegraph battalion and the railway battalion, which are stationed in the corps region, forms a brigade of engineer troops for instructional purposes, under a brigadier general of engineers.

The engineer troops are subordinate to the commander of the corps and to the chief of engineers of the corps. There is no longer an inspector of the engineer arm, that office having been abolished in 1893.

On mobilization for war, the engineer troops attached to corps remain with them.

There are 4 regiments of sappers and miners of 2 battalions of 4 companies each; 1 regiment of pontoniers, of 4 companies; 1 battalion of telegraphists and 1 of railway troops, each of 4 companies; also 1 company of sappers and miners in the Balearic Islands, 1 at Melilla, 1 topographical brigade, and 1 company of workmen. There is a reserve depot for each regiment and independent battalion.

(b) STRENGTH.—PEACE FOOTING.

The regiment of sappers and miners consists of 47 officers, 2 employees, and 566 men.

The sapper battalion consists of 21 officers, 1 employee, and 282 men.

The battalion of telegraphists consists of 28 officers, 4 employees, and 395 men. Three of the companies are "electrical" and the fourth is "optical."

The railway battalion consists of 26 officers, 1 employee, and 395 men. It has a section of velocipedists.

(c) STRENGTH.—WAR FOOTING.

Regiment of sappers and miners, 49 officers, 2 employees, and 2,008 men.

Battalion of sappers, 21 officers, 1 employee, and 1,004 men.

Railway battalion, 31 officers and 1,057 men.

Telegraph battalion, 45 officers, 5 employees, and 1,334 men.

The electrical telegraph companies have 6 officers and 318 men, and the optical company, 7 officers and 378 men.

The regiment of pontoniers mobilizes 8 companies. Its establishment amounts to 62 officers, 25 employees, and 1,723 men.

XIII.—THE RAILWAY TROOPS. (See Engineer Troops.)

XIV.—THE TRAIN TROOPS.

In time of peace there are no organized train troops. On mobilization, the train is raised by requisition of animals and vehicles, and forms sections in the administrative companies, under the name of transportation brigades.

XV.—THE PONTONIER TROOPS. (See Engineer Troops.)

XVI.—THE ADMINISTRATIVE CORPS.

(a) GENERAL.

The military administration corps consists of a corps of officers and a brigade of administration troops. The officers of the corps are divided into two sections, corresponding to their duties, although they form a single corps for promotion, etc. These two branches are the intendance section and the "intervención" section, the business of the latter being principally the control and audit of accounts, etc.

Under the intendance section come the direction and management of the services of subsistence, quarters, heating, lighting, transportation, clothing, equipage, etc., and the administration of all public property belonging to the military service.

Approving vouchers, etc., for payment is the business of the intendance; auditing such accounts is the business of the "intervención" section.

For the execution of the services of both corps there exists an office which forms part of the central administration and which is directly subordinate to the war minister. This office is called "la ordenación de pagos e intervención general de guerra," the branches of which are presided over by an army intendant and a divisional intendant respectively.

There is an intendency in each corps region and military district, which appears to be combined with the "intervención;" there are also such offices for the various military establishments, and commissariat officers in the principal fortresses.

The grades in the military administration corps run from army intendant down to official of the 3d class. They are assimilated to the grades of the military hierarchy, the grade of army intendant being assimilated to that of general of division, and that of official of the 3d class to that of second lieutenant.

Administrative troops.—The troops of the military administrative corps are organized into 2 brigades and 4 separate sections. Each brigade is composed of a staff, 8 companies, and 3 separate sections. These troops are officered from the military administration corps, the brigades being commanded by subintendants whose grade corresponds to that of colonel.

The companies are attached to the divisions of infantry or cavalry at the rate of one to each division; the separate sections of the brigades are attached to those brigades of rifles and of cavalry that are not incorporated in any of the divisions.

The sections and companies are classed as mountain units or mounted units. Their strengths vary very widely. Two companies have as high as 200 men each and one has as low as 15. Some have as many as 5 officers and some have no officers at all.

The total strength of the military administration troops, as fixed by the royal order of the 17th of July, 1895, was 28 officers and 1,320 men.

XVII.—THE MEDICAL AND SANITARY SERVICES.

The medical corps of the Spanish army (*cuero de sanidad militar*) is composed of a medical staff and the hospital troops.

The medical staff officers are divided into two sections, that of medicine and that of pharmacy; the first section being recruited from doctors of medicine and surgery and those medical graduates who have the lower degree of "licenciado," while the second section is recruited from the doctors and licenciates in pharmacy.

Admission to the lowest grade in each of these sections is by competitive examination; promotions from grade to grade are made by seniority.

The grades in the medical section of the corps run from surgeon inspector first class down to second surgeon, the highest grade being assimilated to that of general of division and the lowest to that of first lieutenant. The highest ranking apothecary, apothecary inspector second class, is assimilated in rank to brigadier general. The lowest grade is second apothecary, assimilated to first lieutenant.

There is a medical inspector for each army corps and a chief medical officer for each division.

The hospital troops.—These troops in the peninsula form the first brigade of sanitary troops. The units are companies and sections. Companies are attached to divisions of infantry and cavalry and sections are attached to independent brigades. There are 16 companies and 6 independent sections, and 4 independent sections in the island possessions and in Ceuta and Melilla.

The sanitary troops are officered by details from the medical staff, the commander of the peninsular brigade being a surgeon subinspector first class, corresponding in rank to colonel. There is also another class of officers on duty with these troops—the hospital adjutants. These are men promoted from the sergeants of the sanitary troops. There are three grades of them, assimilated to captain, and first and second lieutenant, respectively.

The troops of the sanitary brigade are also divided into the hospital troops proper (*sección de practicantes y enfermeros*) and the ambulance troops. Each of these forms a section by itself.

The establishment of the sanitary troops according to the royal order of the 26th of July, 1895, was: Staff, 6 officers; hospital section, 23 officers and 676 men, and ambulance section, 7 officers and 144 men.

XVIII.—THE VETERINARY SERVICE.

The officers of this corps are attached to army corps as veterinary superintendents and to the various mounted units, remount depots, etc. They are appointed by competitive examination, candidates being limited to graduates of the veterinary school of Madrid.

The officers of this corps have assimilated rank. Their grades run from veterinary subinspector, 1st class, corresponding to lieutenant colonel, down to third veterinarian, corresponding to second lieutenant.

XIX.—TOTAL STRENGTH.—PEACE FOOTING.

The officers, assimilated officers, and men of the active army amount in round numbers to 95,000 men.

The guardia civil, the Carabineros, and some volunteer corps paid out of the war budget, amount to about 30,000 men.

XX.—TOTAL STRENGTH.—WAR FOOTING.

The following are the figures of the Spanish war ministry for the 1st of January, 1895, as published in the official army list:

Rank and file, permanent army, including guardia civil and Carabineros ..	110,688
Trained men, first reserve	49,482
Total	160,120
Remainder of first reserve	354,475
Second reserve	819,483
Total available for mobilization	1,334,038

XXI.—PROSPECTIVE STRENGTH.

Taking the annual contingent as 40,500, and the number of years service as 12, and deducting 4 per cent for the first year, 3 per cent for the second year, and 2 per cent for the succeeding years, the following figures may be obtained, allowing time for the existing laws, etc., to produce their full effect:

Permanent army and its reserves (6 classes)	220,062
Second reserve (6 classes)	194,611
Total trained men	414,675
Besides a number of untrained men, "condicionales," etc., estimated at about	175,000

This is the estimate of a foreign staff officer. The number of trained men can not be far out, but there is a great discrepancy between the official figures and the estimate, particularly in the matter of untrained men.

The following are the figures of the army list for January, 1896:

Rank and file, permanent army, including guardia civil, etc.	113,551
First reserve, all trained	63,212
Second reserve (191,343 having had military instruction)	548,234
Total	724,997

Over 100,000 men having been sent to Cuba in 1895-96, a considerable reduction was to be expected in the figures for the present year, and it accordingly appears that the first reserve has been heavily drawn upon. The enormous shrinkage noticeable in the second reserve can best be explained by supposing that the old rolls of this reserve were largely fictitious.

COLONIAL TROOPS.

GENERAL.

Financially, the colonial troops are under the ministry of "affairs over the sea" (Ultramar); in other respects, under the war and naval ministries, respectively.

Since the supplemental laws (July 19, 1889), made to the fundamental laws of the army, the colonial troops of Spain have been merged into one with those of the Peninsula. They remain, however, separated from it, in as much as they are permanently colonial.

The numbers of the regular formations are to be made continuous, following on from those of the army of the Peninsula.*

*The last Spanish army list gives the organizations of Ultramar the same numbers that they had before the reorganization of 1893.

CONDITIONS OF SERVICE.

Recruiting is partly by voluntary enlistments and reenlistments and partly by conscription. When the local contingents are insufficient, recruiting is done in the mother country.

I—THE ARMY OF CUBA.

The island of Cuba and a few adjacent small islands constitute a special district and "captain generalcy," commanded by a lieutenant general. He is assisted by a second chief of the district who is also subinspector general and governor of Havana. There are five other provinces commanded by brigadier generals as governors.

(a) THE INFANTRY.

There are 7 regiments of 2 battalions of 4 companies each, 1 battalion of rifles, 12 companies of guerrillas, the companies of Santa Catalina de Guaso, a section of orderlies, and a disciplinary brigade. There are also 2 militia battalions of 6 companies each, one of whites and the other of blacks.

The total effective of the infantry, with militia battalions, is 408 officers and 12,030 enlisted men.

(b) THE CAVALRY.

There are 2 regiments of cavalry of 4 squadrons each, 1 squadron of volunteers of Camajuani, and the 2 militia squadrons of Havana and Matanzas.

The total cavalry effective, counting militia, is 90 officers and 1,596 men.

(c) THE ARTILLERY TROOPS.

There is a brigadier general as subinspector of artillery.

The artillery troops have recently been reduced to 1 battalion of fortress artillery (6 companies), with 1 mountain battery (6 guns), and 1 company of workmen.

There are two artillery establishments, both at Havana, the "maestranza" or arsenal of construction, and the military pyrotechnic laboratory.

The total artillery effective is 43 officers and 735 enlisted men.

(d) THE ENGINEER TROOPS.

There is a brigadier general as subinspector of engineers.

The engineer troops consist of one mixed battalion of 4 companies, viz, 1 company of telegraphists, 1 of railway troops, and 2 of sappers.

The total engineer effective is 27 officers and 414 men.

There are besides the above, in Cuba, officers and men of the administrative service, the sanitary brigade, the recruiting personnel, and a shipping department.

Distinct from the line, yet forming part of the military, are the guardia civil or gendarmerie (185 officers and 4,318 men), and the corps of public order (21 officers and 919 men of the dismounted branch, and 2 officers and 57 men of the mounted branch).

Cuba has also a military school for boys.

The total strength of the permanent army of the Island of Cuba, counting the guardia civil, the orden público, and a few volunteers who are included in the war section of the budget of the island, amounts to 981 officers and 19,199 men.*

* In addition to the above troops of the permanent army there are numerous corps of militia and volunteers in Cuba consisting of infantry, cavalry, and artillery, the total strength of which amounts, in round numbers, to 59,000 men.

II.—THE ARMY OF OPERATIONS IN CUBA.

The Royal Decree of the 28th of June, 1895, publishing the establishments of the armies of the Peninsula and Ultramar for the year 1895-96, fixes the strength of the permanent forces of the Island of Cuba (rank and file, not including the guardia civil, etc.) at 13,842. The government, however, is empowered to increase the Cuban establishment to the force considered necessary to suppress, with the utmost promptness, the existing insurrection.

This increase has been made in 3 ways: By raising the strength of the regiments, battalions, etc., of the permanent armies of Cuba and Porto Rico; by raising additional units (battalions and squadrons) in Cuba and in the Peninsula; and by dispatching certain units of the Peninsular army (first battalions of certain regiments and certain battalions of rifles) for service in Cuba.

The army of operations in Cuba, December 1, 1895, counting the forces of the permanent Cuban army, was as follows:

Infantry, 7 regiments or 14 battalions and 1 battalion of rifles, 1 disciplinary brigade, and some independent companies (Cuban establishment); 2 battalions of rifles and 2 provisional battalions (Porto Rican establishment); 7 Peninsular battalions and 2 Peninsular battalions (raised for Cuban service at home and in Cuba); 51 expeditionary battalions (certain designated battalions of rifles of the home army, and the 1st battalions of certain designated regiments at home), and 3 battalions of marine infantry.

	Men.
Total infantry, 82 battalions and 1 disciplinary brigade and some independent companies..	79,000
Cavalry, 2 regiments of the Cuban establishment, and 18 squadrons, furnished by certain designated regiments of the home army	7,000
Artillery, 1 fortress battalion of the Cuban establishment, 1 fortress battalion (No. 11) raised in Spain for Cuban service, and 1 mountain artillery regiment, organized from the battery of mountain artillery existing in Cuba, and 5 mountain batteries raised in Spain; total.....	2,300
Engineers, 1 mixed battalion of the Cuban establishment, 1st battalion of the 3d regiment of sappers of the Peninsular army, and 1 company of signalers; total.....	1,658
Sanitary brigade.....	700
Transport companies	1,055
Local guerrillas (6 companies).....	700
Total, December 1, 1895	92,418
Troops sent since December 1, 1895:	
Instructed recruits sent in the latter part of December, 1895 (called the 8th expedition) ..	6,317
Ninth expedition, sailed February 12, 1896, about.....	20,000
Total Spanish forces in Cuba, about	118,730
(Four or five per cent of the above figures may be deducted for losses).	

III.—THE ARMY OF PORTO RICO.

Porto Rico is under a captain general and is administered like Cuba.

The permanent army of Porto Rico consists of 4 battalions of rifles of 4 companies each, 1 battalion of fortress artillery of 5 companies, 1 section of cavalry, 1 section of artillery workmen, the sanitary brigade, and 1 "tercio" of the guardia civil.

There are, moreover, representatives of the administration, and the general staff of the army and of the engineer staff, besides several corps of volunteers, organized in a manner similar to those of Cuba.

Total effective of the permanent army for 1894-95, 213 officers and 3,630 men.

There is also a military school for boys.

IV.—THE ARMY OF THE PHILIPPINE ISLANDS.

The district of the Philippine Islands is under a captain general, who also commands the Caroline and Marianne islands, and is divided into several military governments, of which Manila is the most important.

There are 7 regiments of infantry of 1 battalion of 6 companies each, 1 disciplinary battalion, 1 squadron of cavalry, 1 regiment of artillery of 2 battalions, each of 1 mountain and 5 fortress companies, 1 company of marine artillery, 1 company of artillery workmen, 1 battalion of engineers, 1 sanitary brigade, 3 "tercios" of the civil guard, and 3 companies of carbineers (customs guard).

Total effective, 864 officers and 19,238 men.

The grand total for the army of Ultramar is 2,058 officers and 32,067 men.

SWITZERLAND.

I.—AREA AND POPULATION.

The territory of the Swiss Confederation covers an area of 15,976 square miles and has a population of 2,986,848, or 182.6 per square mile.

II.—AVAILABLE STRENGTH.

The number of young men who became of military age in 1894 was 26,326, that of men of previous contingents whose entry had been delayed was 7,824, so that the total contingent for the year amounted to 34,150, of which 17,564 were incorporated in the élite (51.4 per cent of the contingent).

III.—CONDITIONS OF SERVICE.

The military organization of the Swiss Confederation is peculiar. The constitution expressly prohibits the confederation from keeping a standing army, nor are the cantons allowed, without special permission from the federal government, to keep more than 300 standing troops, gendarmerie not included. The constitution provides in this connection that the army shall consist of the standing contingents of the cantons and such other men as are liable to military service, though not belonging to the standing troops. The military system adopted by the confederation is a militia system pure and simple, but the thoroughness of the training approaches that of some of the standing armies of Europe.

To begin with, the constitution requires that the cantons provide for primary instruction, and that all boys from the age of ten until they leave the primary schools, receive gymnastic instruction preparatory to military service, which includes drill in the manual of arms. The cantons must provide in addition, that all youths from the time of leaving the primary schools until their twentieth year, receive further gymnastic instruction to fit them for military service, which in the last 2 years may include rifle practice. Distinct from the compulsory gymnastic classes are the so-called "cadet corps" which, though not recognized by the federal laws, have to a greater or less extent the support of the cantonal authorities. These corps have existed in Switzerland in one form or another since very ancient times. They are made up of boys from ten to sixteen years old and upward, organized into companies, battalions, and batteries and officered by the boys themselves and sometimes by the school instructors. The instruction, which includes company and battalion drill, musketry practice, and a certain amount of theory, is given voluntarily by the federal or cantonal officers once or twice a week. Sometimes there are grand maneuvers, in which the companies and battalions of school boys of several schools and cantons join, and which are directed by high military officers of the Confederation.

It is expected that the Confederation will soon legalize these cadet corps in some way, or, at all events, that it will provide for compulsory military training for all youths between the ages of sixteen and twenty. It will thus be seen that when the average Swiss youth has arrived at the enrollment age he is already in possession of some military training.

Every citizen of the Confederation, with certain exceptions, is liable to military service. and those who do not perform military service in person, are subject to a special tax.

Liability to service is divided into three classes:

1. Liability to service in the élite, which lasts from the completed 20th to the completed 32d year.
2. Liability to service in the landwehr, which lasts from the completed 32d to the completed 44th year.
3. Liability to service in the landsturm, which lasts from the completed 44th to the completed 50th year, and also includes the young men between seventeen and twenty years of age.

Young men are incorporated in the élite only after they have had their preliminary training; this preliminary instruction or recruit school lasts 45 days for infantry, 50 days for cavalry, 55 days for the artillery, 42 days for the train and artificers, and 50 days for the engineers. The instruction being completed, the recruits are incorporated in the élite, and the oldest class of the latter enters the landwehr, while in turn the oldest landwehr class enters the landsturm.

Service in the élite lasts 12 years. Every year there is a drill season for the cavalry, and every other year for the other arms, which lasts 15 days for the infantry, 10 days for the cavalry, 18 days for the artillery, 14 days for the train, and 16 days for the engineers. The cadres for these drill seasons are united from 4 to 8 days before the troops report.

From the élite they are passed into the landwehr for 12 years, where they are subject (cavalry excepted) to be recalled for 5 days' training every 4 years, with a preparatory course for the cadres of 4 days. Those landwehr troops which do not take part in the drill seasons take part in the regular target-practice seasons and are subject to a yearly inspection of one day. From the landwehr they pass to the landsturm, where they remain until 50 years of age, and may be recalled for 2 trainings of one day or 1 training for two days every year. The landsturm also includes all male citizens between 20 and 50, not otherwise incorporated, and all able-bodied young men between 17 and 20.

This method admits of training the greatest number of men at the least expense, and they are always ready for service when required; furthermore, there is no difference between peace and war footing either as regards organization or strength.

Excluded from service are criminals. Exempt are men who are wholly disqualified physically; those who are not quite tall or strong enough may suffer adjournment for three years, when they are either accepted or wholly rejected.

Temporarily exempt from service are the members of the Federal Council and Federal Assembly, the employees of the railway, telegraph, and postal services, clergy, attendants of hospitals and prisons, police and revenue officials, etc., while holding such office.

IV.—COMMAND.

Before discussing the command it is perhaps of interest to cite a few of the provisions of the constitution. That instrument provides that military legislation, the control, training, and armament of the army be in the hands of the union, while the cantons furnish clothing, equipment, and subsistence, for which they are, however, reimbursed by the federal government. The Federal Assembly also frames the regulations of the army, and appoints the commander in chief. Internationally the assembly has the exclusive right to conclude treaties, take measures for the external safety and maintenance of the independence and neutrality of Switzerland, to declare war, and conclude peace.

For purposes of command and administration the federal territory is divided into eight divisional districts, each of which furnishes a whole division and is correspondingly subdivided.

The highest military authority in time of war is the commander in chief, who is appointed by the Federal Assembly, as has been stated above. In time of peace the highest military authority is the Federal Council, a committee appointed by the national legislature, which really constitutes the Federal Cabinet. This Federal Council exercises its functions, as regards the army, through the military department, which is presided over by one of the members of the council, who, as well as his deputy, is a military officer.

V.—THE MILITARY DEPARTMENT.

The military department is presided over by the chief of the military department. The office is charged with the execution of the laws on military organization, recruiting, clothing, armament, equipment, subsistence, pay, administration of military law, mobilization, topography, and fortifications.

The department is organized in the "chancellerie" of the department and the administrative divisions.

The personnel of the chancellerie consists of 3 secretaries and the general staff officer of the department, who in 1895 were of the following grades: First secretary, colonel brigadier (colonel is the highest rank in the Swiss army in peace); second secretary, colonel; third secretary, captain; and general staff officer, colonel of the general staff.

THE ADMINISTRATIVE DIVISIONS.

These divisions are each presided over by a chief and are as follows:

1. The division for infantry is presided over by the "chef d'arme de l'infanterie," the chief officer of infantry, who deals with matters of recruiting, personnel of officers and noncommissioned officers, instruction and training, armament and equipment, and orders and regulations for the infantry. In addition to these duties relating to his own branch of the service he is charged with the consideration of questions affecting the army as a whole, such as maneuvers, etc. Personnel: 1 colonel corps commander, "chef d'arme," chief of the division, and 1 secretary, major.

2. The division for cavalry deals as regards its own branch of the service, with the same matters as the infantry division; in addition the office is specially charged with all matters relating to cavalry horses. Personnel: 1 colonel, "chef d'arme," chief of the division and 1 secretary, lieutenant.

3. The division for artillery is under the "chef d'arme de l'artillerie," who besides discharging the usual functions of a "chef d'arme" toward the artillery, has control of the artillery matériel, ammunition columns, trains, and companies of artificers. Personnel: 1 colonel, "chef d'arme," chief of the division and 1 secretary, major.

4. The engineer division is under the "chef d'arme du génie," who in addition to the usual functions of a "chef d'arme," has the superintendence of fortifications. Personnel: 1 colonel, "chef d'arme," chief of the division; 1 colonel, secretary for technical matters, and 1 colonel, secretary for the personnel.

5. The general staff office is in time of peace under the chief of the general staff, who has under him all matters relating to the personnel of the general staff, its organization and training. The duties of the bureau are chiefly connected with matters of national defense, mobilization, and transportation of troops. The office is divided into six subdivisions and

has the following personnel: 1 colonel, chief; 1 lieutenant colonel, chief of the intelligence office; 1 lieutenant colonel, chief of the general staff section; 1 major, chief of the tactical section; 1 lieutenant colonel, chief of the geographical section; 1 lieutenant colonel, chief of the railway section, and 1 major, in charge of office and records.

6. The topographical bureau is under the chief of engineers, who thus becomes the head of two bureaus. The topographical bureau is charged with the topographical survey of the country, and the preparation, preservation, and issue of the maps.

7. The administration of the warlike matériel of the confederation. This bureau is divided into two sections—(a) the technical section, and (b) the administrative section.

(a) The technical section is presided over by a colonel assisted by a major and captain, and has under it the artillery experimental station at Thun, the ammunition control at Thun, the ammunition factory at Thun, the arms factory at Thun, and the construction arsenal at Thun.

(b) The administrative section is under a colonel, assisted by a major (inspector), and has under it the ammunition depot at Thun and the twenty-three "war depots."

The technical section is charged with the purchase, manufacture, and repair of arms and ammunition, the administrative section, with the custody, distribution, and issue of these stores.

8. The office of the surgeon in chief. The incumbent directs the sanitary service of the army, training and instruction of the commissioned and enlisted personnel of the medical service, and also controls the matériel. The incumbent is a colonel, assisted by a lieutenant colonel.

9. The office of the veterinarian in chief has charge of the veterinary service. The incumbent, who is a colonel, is assisted by a captain.

10. The superior war commissariat represents the administrative and accounting branch of the service, dealing with all matters of pay, clothing, subsistence, transport, quarters, etc., and the accounts connected therewith. The office is divided into three sections, viz, (a) accounting section, (b) clothing section, (c) subsistence and magazine section. The personnel is as follows: 1 lieutenant colonel, superior war commissary; 1 lieutenant colonel, deputy of the superior war commissary and chief of section (a); 1 captain, chief of section (b); 1 captain, chief of section (c); 1 captain, secretary, and 1 major, controller of the inventory.

11. The chief auditor has charge of the supervision of the administration of military justice. He has the rank of colonel and is assisted by a deputy of the same grade.

12. The central powder administration is under a major assisted by a civilian.

13. The remount depot at Thun is under a colonel assisted by a captain.

14. The administration of the Gotthard fortifications with the following personnel: 1 divisional colonel, commandant; 1 colonel, deputy of commandant; 1 lieutenant colonel, 2 majors, 1 first lieutenant, and 2 second lieutenants.

15. The administration of the fortifications of St. Maurice, with personnel as follows: 1 colonel, commandant; 1 major, deputy, and 2 first lieutenants.

VI.—INSTRUCTION.

For the instruction of the forces a special corps of instructors is provided, all appointed by the fédéral government. At the head of the corps of instruction of each branch of the service is a chief instructor, who prepares the course of instruction for his branch of the service and submits it for the approval of the military department. He is the subordinate of the "chef d'arme" of his branch and represents him in his absence.

In the infantry there is a corps of instructors for each of the eight divisions, usually consisting of the district instructor, 4 instructors of the first class, 6 to 7 of the second class, and 2 noncommissioned officer instructors of the drummers and trumpeters.

The chief instructor of the infantry superintends the central school as well as the instruction in the districts.

In the other branches of the service, *i. e.*, cavalry, artillery, engineers, hospital troops, and administration troops, the instructors are not distributed among districts as in the infantry. The chief instructor of infantry is assisted by 3 officers (2 colonels, the third being a lieutenant colonel of the general staff), also by a colonel as instructor of musketry.

The number of instructors is fixed as follows: Infantry, 128; cavalry, 16; artillery, 37, and engineers, 16, who are classed as follows: 4 chief instructors, 8 district instructors, 1 musketry instructor, 48 instructors of the first class, 94 instructors of the second class, 26 assistant instructors, 8 instructors of trumpeters, and 8 instructors of drummers.

VII.—STAFF.

To the staff belong the officers of the general staff, the adjutants, the officers who represent the several arms and branches of service, and the staff secretaries, noncommissioned officers and soldiers of the staffs.

(a) THE GENERAL STAFF.

The bureau of the general staff forms, as above stated, the fifth division of the military department. In the office of the general staff are prepared all arrangements for mobilization and movement of the army, the management of railways in war, and the territorial service and that of the lines of communications. It collects and compiles information on the Swiss and foreign armies.

The chief of the general staff bureau is, in time of peace, at the head of the corps of general staff officers; he deals with matters of personnel of the general staff, its training, and directs all the work performed in the bureau.

The bureau is divided into 6 sections, *viz*:

The chancellerie, whose chief is at the same time in charge of the military library.

The intelligence office, which deals with foreign armies and military geography.

The general staff section, dealing with general staff work, strategic deployments, and territorial service.

The tactical section, which deals with tactics, mobilization, and lines of communications.

The technical section, which has in charge fortifications, reserves, and matériel.

The railway section deals with railways and steamers and their use in war.

The army list for 1895 shows the following officers on the establishment of the general staff: 7 colonels, 24 lieutenant colonels, 8 majors, and 28 captains.

The railway section has its own personnel, mostly made up from the railway profession: 4 colonels, 8 lieutenant colonels, 6 majors, and 26 captains.

When attached to the troop staffs, it is the duty of the general staff officer to elaborate the orders according to the commander's will and intention; he is charged with the service of information and the execution of reconnoissances, with the supervision of the office and of the work in the various branches of the service, and also with the preservation of the efficiency of the troops. General staff officers are allotted to the troop staffs at the rate of 8 to an army staff, 3 to a corps staff, 2 to a division staff, and 1 to a brigade staff.

(b) THE ADJUTANTS.

Officers detailed as adjutants are detached from the organization to which they belong and assigned to adjutant's duty, usually for a term of 4 years, during which they are carried as on detached service. They do not form a separate corps. They are charged with the drawing up of tactical reports, and all matters relating to personnel, discipline, police, and matériel, and supervise the subordinate personnel of the staff. Where there are no general staff officers, the adjutants discharge their functions.

Adjutants are allotted to troop staffs at the following rates: To an army staff, 1 adjutant general (colonel of infantry) and 9 adjutants; to a corps staff, 8 adjutants; to a division staff, 2 adjutants, and to the brigade staff, 1 adjutant.

(c) OFFICERS WHO REPRESENT THE SEVERAL BRANCHES OF THE SERVICE.

These are superior officers and are to be found only in the higher staffs (for instance the chief of artillery of a corps, or a "chef d'arme"). The technical services and others which are represented by specialists, are the train, medical service, veterinary service, administration, military justice, clergy, and field telegraphy.

(d) STAFF SECRETARIES, ETC.

Staff secretaries are "office assistants" who keep the books and assist in the correspondence. To the noncommissioned officers and soldiers of the staff belong the noncommissioned officers and privates of the train, the personnel of the postal and telegraph service, and the bicycle men.

VIII.—ADMINISTRATION.

The administration is divided into that of (a) the personnel, comprising the lists of enrollment, furloughs, and levies, and (b) the matériel, comprising arms, clothing and equipment, corps equipments, ammunition, and inspection of the matériel.

(a) LISTS OF ENROLLMENT.

The names of all Swiss of military age are entered in a roll called "Stammkontrolle," and as these lists form the basis of the whole system of recruitment, they are kept by the district commander, a separate list being kept by him for every community. Separate extracts are made from these lists of men who are liable to active service and those liable to depot service; these lists are called "Corpskontrollen" and are kept by the "chefs d'arme" for the staffs of the combined organizations, the federal troops, and federal military personnel attached to cantonal troops, such as quartermasters and surgeons; the lists for the cantonal troops are kept by the cantons. These lists contain about the same data as our descriptive lists, and every man is obliged by law to have his individual "service book" in which all these details are noted.

(b) FURLOUGHES.

Swiss citizens desiring to go abroad for any length of time must apply for a furlough, noncommissioned officers and men to the district commandant, officers of cantonal troops to the cantonal military authorities, all others to the "chefs d'arme." The furlough is duly recorded in the service book.

Officers have to apply for leave if desiring to reside abroad for more than two months.

(c) THE LEVY.

The levies of all troops are ordered by the federal and carried out by the cantonal authorities. The details of levies for instruction are arranged by the "chefs d'arme." The levy for active service is carried out according to a secret plan of mobilization. On mobilization, army and division commanders are supplied by the military department, the other personnel of the staffs of mixed bodies and the investigation and valuation committees by the "chefs d'arme" and chiefs of sections; all the rest of the men and the horses and wagons required to be furnished by the communities are brought forward by the cantonal governments or their military authorities.

(d) THE MATÉRIEL.

(a) *Arms*.—On entering the service each recruit is provided with a new set of arms which he retains, together with a package of ammunition, as long as he is liable to service. (The package contains 30 cartridges, is of tin and hermetically sealed.) All arms are provided by the federal government, and each canton is duly supplied with the arms required to arm the men joining the service. Every year a "principal inspection" of arms is made in each district by the "controller of arms" of the district, and such unexpected inspections as may be deemed necessary. In these inspections the controller is accompanied by the commandant of the district and subdistrict, and an armorer who makes such repairs on the spot as are possible. At these inspections the man has to present his rifle and package of cartridges, and the result of the inspection is duly recorded in the "service book." Neglect in the care of arms is punished by fines and imprisonment. The controllers keep special lists of every rifle, in which the history of each is recorded.

(b) *Clothing*.—Clothing and equipments are supplied by the cantons, which are reimbursed by the federal government at a fixed schedule. On entering the service each recruit is furnished with a uniform and equipments which he retains, like the arms, until his liability to service ceases. Underclothing is provided by the man himself. The wearing of any part of the uniform except on service is forbidden and punished by fine and imprisonment. The cantons are required to keep on hand clothing and equipment not only for the present contingent due, but also for an additional contingent, and are paid by the federal government 4 per cent interest on the money so invested. When the liability for service in the landsturm ceases, the man may keep the clothing, knapsack, and cleaning materials, and turns in everything else. Officers and adjutant noncommissioned officers receive a lump sum for their expenses in providing equipments.

The clothing is inspected by a "controller of clothing and equipments" in the same way as are the arms.

(c) *Corps equipments*.—Under corps equipments are understood guns, military vehicles, ammunition, horse equipments, sanitary matériel, utensils, and also blankets and landsturm cloaks. The corps equipments are supplied by the federal government, the cantonal authorities being charged with the safe-keeping and maintenance of the equipments in the hands of the cantonal troops. All matériel, not pertaining to special organizations, is also the property of the federal government and is in charge of depot officials who are directly subordinated to the "administration of warlike matériel."

All the matériel is kept at the places where the troops are to be mobilized, and in each establishment the matériel of the several organizations is to be kept in a separate room or place.

(d) *Ammunition*.—All ammunition is provided by the federal government. The cantonal authorities are charged with supplying from their depots that ammunition which is carried on the person of the soldiers and in the ammunition columns of the corps, while the federal government provides the ammunition reserves carried in the field parks. Besides, there are distributed all over the country specially commissioned sellers of ammunition, which supply the public, particularly the rifle associations, with infantry ammunition. The ammunition is manufactured at the factory at Thun and stored in the ammunition depot at the same town. The depot supplies the arsenals, depots, and ammunition sellers with ammunition. The law requires that the oldest ammunition be issued first for purposes of instruction and to rifle associations, which can be readily carried out, as the consumption of ammunition for instructional purposes amounts to 2,000,000 rounds annually and the members of the rifle associations use 10,000,000 rounds per year.

(e) *Inspection of the matériel*.—The right of this inspection belongs in the first place to the "chief of the administrative section" of "the administration of warlike matériel" in order that he may convince himself of the quality and quantity of the matériel on hand, for which purpose a special "inspector of matériel" is at the disposal of the chief of the administrative section.

In the second place the "inventory controller" of the "superior war commissariat" has the right to verify the articles carried on the books.

In the third place the officers of the troops have the right to convince themselves by personal inspection that the matériel which is to be supplied to their commands on mobilization is actually on hand and of the proper quality.

IX.—COMMISSARIAT ADMINISTRATION.

Under this heading are comprised (a) subsistence, (b) pay and travel allowances, (c) quarters, and (d) indemnification for damage done to husbandry.

(a) SUBSISTENCE.

Subsistence may be supplied in three ways: (1) Commutation of rations, (2) billeting, and (3) rations in kind.

1. *The commutation*.—Commutation of rations is paid at the normal rate of 1 franc per ration and 1.80 francs for forage.

2. *Billeting*.—When billeted on the inhabitants the soldier shares the breakfast, dinner, and supper of the person on whom he is quartered and the citizen is reimbursed at the rate provided for the commutation of rations for the soldier.

3. *Rations in kind*.—In the field the ration is composed of 750 grams of bread, 375 grams of fresh meat, 150 to 200 grams of vegetables, 20 grams of salt, 15 grams of roasted coffee, and 20 grams of sugar.

In lieu of bread hard bread may be issued, and salted or smoked meat or bacon, meat conserves, or cheese may be substituted for fresh meat.

On occasions of extraordinary exertion the meat ration may be increased and supplemented by wine or brandy.

The "iron" ration consists of (1) meat conserves in tins of one portion each, contents weighing 250 grams; (2) hard bread in tablets of 5 grams each, 250 grams to the ration, each ration done up in a cloth bag; (3) soup tablets of pea or bean meal of 100 grams to the ration, done up in parchment.

Four iron rations are provided for each man, 2 being carried by the soldier himself, and 2 on the wagons.

Fuel for cooking purposes is supplied on the basis of 3 meals per day.

In time of peace the ration consists of 750 grams of bread and 320 grams of meat. Vegetables and salt are provided by the troops themselves, for which they are given a certain amount of money. As even thus the ration will be short, the man is required to contribute from his pay 10 to 20 centimes per day.

To insure ample subsistence and forage on mobilization, large supplies of meat and soup conserves, wheat, oats, hard bread, etc., are kept on hand in the magazines. The responsibility rests directly with the chief of the superior war commissariat. An inventory of the supplies in the magazines is periodically taken by the "inventory controller" of the superior war commissariat. (At the end of 1894 there were on hand 923 carloads of wheat, 627 carloads of oats, and nearly 1,500,000 rations of meat conserves.)

(b) PAY AND TRAVEL ALLOWANCES.

For officers there are two schedules of pay, viz, field service pay and instructional service pay. Payment is made at every fifth or tenth day. The pay of noncommissioned officers and men is the same in both field and instructional services.

Individuals and detachments of less than 10 men when traveling receive, in addition to the pay of their grade, commutation of rations and a certain money allowance for every kilometer beyond 20; if the road traveled is a mountain road, the allowance is increased. On the cars officers and their servants, soldiers, and horses, are entitled to half fare.

(c) QUARTERS.

Troops called out for training are usually quartered in barracks whose owners are reimbursed by the federal government. When greater bodies of troops are assembled, they are quartered in empty buildings, and supplied with bedding straw. Communities which have troops quartered on them are obliged to provide rooms for officers for the staffs, guardrooms, sick wards, places of confinement, and parking grounds for the wagons. Whatever else they supply is paid for. With a view of making full use of all the facilities in the way of quartering that may exist in Switzerland, an extensive inventory has been made of every building that is useful in one way or another for military purposes, and its capacity for quartering so that troop commanders know beforehand how many men can be sheltered in a certain community, and how many bakeries, blacksmith shops, etc., there are.

(d) INDEMNIFICATION FOR DAMAGE TO HUSBANDRY.

Damage to husbandry caused by exercises and maneuvers of troops are assessed by two experts, one named by the corps commander, the other by the proprietor.

X.—MILITARY EXPENDITURE.

The budget for 1895–96 carries 22,769,529 francs.

XI.—MEDICAL DEPARTMENT.

The sanitary service (sanitaetsverwaltung) is divided into a medical and veterinary branch (represented in the military department by the 8th and 9th divisions).

THE MEDICAL BRANCH.

The medical branch is responsible for the training and efficiency of the hospital troops. In addition it is charged with the following classes of duties: (a) Supervision of the medical examination and mustering out of men liable to service; (b) the service of sanitation; (c) the hospital service; (d) rendering of professional opinions on the consequences of diseases and injuries, and (e) assessment of indemnifications.

The classes (b) and (c) may be called the medical service with troops, and this is divided into sanitary service with the troops, field hospital and ambulance service, service at the permanent and semipermanent hospitals, transport service, and relief societies. The first two of these classes of medical service are in the hands of the medical personnel attached to the troops, under the direction of corps and divisional surgeons. The last three classes are directly under the superior field surgeon.

THE VETERINARY BRANCH.

The veterinary branch is charged with the treatment of the sick and injured horses. In addition the veterinarians act as experts in the valuation of the horses impressed in the service and assessing the damages for injuries suffered by the horses while in the public service. Their duties are, therefore, of great importance to the state, as well as to the citizen, from a financial point of view.

XII.—COMMAND AND ADMINISTRATION OF THE MOBILIZED ARMY.

The term "mobilized" as usually understood, is not exactly applicable to the Swiss army, in as much as its strength and organization is the same in peace and war, and the troops have simply to be called to arms. On preparing for the field it only remains to appoint the general commanding the army and form the headquarters' staff. On mobilization the service may be divided into (a) command and administration in rear of the field army, and (b) command and administration of the field army.

(a) COMMAND AND ADMINISTRATION IN REAR OF THE ARMY.

The following services in rear of the army begin to function from the day of mobilization: (1) The territorial service, (2) the *etappen* service, and (3) the railway service.

1. *The territorial service.*—When the army takes the field, it leaves in its rear the territorial service, which is under the charge of the military department and has for its object the military administration of the country and the preservation of the efficiency of the army by collecting and keeping in readiness all manner of warlike matériel. For this purpose the country is divided into nine territorial circles; at the head of the administration is the military department, as previously stated, and under it are the commanders of territorial circles, who in turn have the *landsturm* commandants subordinated to them. They are the supervising organs. The cantons, under their direction, attend to the raising of new troops and supplying warlike matériel, care for sick and wounded, provide for prisoners, relieve the families of the men in the field army, etc.

2. *The *etappen* service.*—This service is under the charge of the commander in chief and organized on the same territorial subdivision as the territorial service. This service is charged with the transportation, marches, etc., along the line of communications. The personnel provided in time of peace is 1 superior *etappen* commandant who, if possible, is at the

same time the chief manager of railways; 1 principal etappen commandant; 6 depot (sammel) etappen commandants, and 26 initial-etappen commandants.

The superior etappen commandant is at headquarters to remain in touch with the supreme command; the principal etappen commandant is his deputy and issues orders to the etappen service in accordance with instructions from the superior etappen commandant.

3. *The railway service.*—The railway and steamboat service is also subordinated to the commander in chief and supervised by the chief manager. The organs of the service are the chief manager, who remains at headquarters and is subordinated to the superior etappen commandant, unless he fills both offices himself; the chief of the technical service is the executive organ of the chief manager and the subordinate of the principal etappen commandant with whom he remains; and the group traffic managers correspond to the five groups of railways and manage the traffic with the matériel and personnel of the peace establishment.

All railway and steamboat lines with all their matériel are at the disposal of the administration in case of war.

(b) COMMAND AND ADMINISTRATION OF THE FIELD ARMY.

Command and administration of the field army is exercised through the army staff and the subordinate staffs.

The army staff.—At the head of the army staff is the general, whose task is prescribed to him by the government, while the means to be employed are left to his discretion. He has in his own office 3 officers and 1 staff secretary for the transaction of all business that he reserves for himself.

The chief of staff is nominated by the general and confirmed by the Federal Council. The headquarters is divided into the following divisions, all of which are under the chief of staff:

1. The general staff division, with a chancellerie as a subdivision. The division deals with matters relating to the operations, and strategic-tactical matters; the subdivision has charge of the correspondence and records. To the division also belong the field post director and the telegraph director.

2. The etappen and railway division, presided over by the superior etappen commandant. The division is charged with the management of railways and the service of the lines of communications.

3. The "adjutantur" (adjutant's office), presided over by an adjutant general (colonel of infantry). The division has charge of the service, reports, police of the army; under the adjutant general is the commandant of headquarters, charged with the safety and police of headquarters and with the command of troops and auxiliary personnel attached to headquarters.

4. The artillery division has direct charge of the training of the arm, matters of personnel, and technical affairs. Under it are the park direction which provides ammunition and supply of warlike matériel, and the train direction which has charge of teams and their replacement.

5. The engineer division has charge of the personnel and matériel of the arm, and the more important technical matters.

6. The medical division.

7. The veterinary division.

8. The division of military justice.

9. The commissariat division, which is charged with the subsistence pay, clothing, shelter, and equipment of the army.

The total personnel of the army staff is 58 officers, 15 noncommissioned officers, 22 soldiers, and 91 horses.

The staff of the army corps.—The staff of the army corps consists of 25 officers, 11 noncommissioned officers, 17 soldiers, and 22 horses. The corps is commanded by the army corps commandant. The chief of staff is the senior general staff officer present, who is assisted by two other officers of the general staff and an officer from the railway section of the general staff. The remaining personnel consists of the adjutants, chief of artillery, chief of engineers, corps surgeon, corps veterinarian, corps commissary, chief of the field post and chief of the field telegraph. The functions of the personnel correspond to that described on the part of the army staff.

The staffs of inferior organizations are similarly organized.

XIII.—TROOPS.

The various kinds of troops composing the federal army are (1) infantry (fusiliers and rifles), (2) cavalry (dragoons and guides), (3) artillery (cannoneers, train soldiers, fortress artillery and park soldiers), (4) engineers (sappers, pontoniers, and pioneers), (5) sanitary troops (medical and veterinary personnel), and (6) administration troops.

XIV.—ORGANIZATION.

The field army consists of the 12 contingents of the élite organized in 4 army corps. The composition of the staff has been detailed above.

THE ARMY CORPS.

The army corps comprises (1) the staff, (2) 2 divisions, (3) 1 cavalry brigade, (4) half a company of guides, (5) the corps artillery (consisting of a staff and 2 artillery regiments of 2 field batteries each), (6) the corps park (consisting of a staff and 4 park columns), (7) the field bridge detachment (consisting of a staff, 2 pontonier companies, and a bridge train) (8) a telegraph company, (9) the corps hospital (consisting of staff, 4 ambulances, and a portion of the hospital train), and (10) the subsistence detachment (consisting of the staff, 2 administration companies, and the train of the subsistence detachment).

The total strength of the army corps is 25,667 officers and men, 1,747 saddle horses, 106 draft horses, 72 guns, and 916 wagons.

THE DIVISION.

The division consists of (1) the division staff, (2) 2 infantry brigades of 2 regiments of 3 battalions each, (3) 1 rifle battalion, (4) 1 company of guides, (5) the divisional artillery (consisting of a staff and 2 regiments of 2 batteries each), (6) 1 engineer half battalion (consisting of a staff and 2 sapper companies), and (7) 1 divisional hospital of three ambulances and a portion of the hospital train.

The total strength of the division is 11,198 officers and men, 24 guns, 20 saddle horses, 755 draft horses, and 240 wagons.

THE BRIGADE.

The infantry brigade consists of the staff and 2 regiments of infantry. The staff comprises 6 officers, 1 noncommissioned officer and 2 privates, 9 saddle and 2 draft horses, and 1 wagon.

The cavalry brigade consists of the staff and 2 regiments of cavalry. The staff comprises 4 officers, 2 noncommissioned officers, 1 private, 9 saddle and 2 draft horses, and 1 wagon.

The corps artillery consists of a staff and 2 regiments of artillery. The staff comprises 3 officers, 2 noncommissioned officers, and 1 private, 6 saddle and 2 draft horses, and 1 wagon.

The divisional artillery is similarly constituted.

XV.—INFANTRY.

There are 2 regiments of 3 battalions of 4 companies each and 8 battalions of rifles, in all 104 battalions of the élite. There is an equal number of landwehr infantry and rifle battalions.

The infantry company consists of 5 officers and 176 rank and file.

The battalion staff numbers 5 officers, 28 rank and file, and 7 saddle horses.

The strength of the battalion is 25 officers and 732 rank and file.

The strength of the regiment is 80 officers, 2,201 rank and file, 28 saddle horses, 62 draft horses, and 31 wagons.

XVI.—CAVALRY.

The cavalry is grouped into 4 brigades of 2 regiments each at the rate of 1 brigade for each army corps. There are moreover 12 companies of guides (mounted orderlies)—one for each of the 8 divisions and 4 attached to the general headquarters of the army.

In all there are 8 regiments of dragoons of 3 squadrons each, and 12 companies of guides.

The regiment consists of 19 officers, 358 rank and file, 376 saddle horses, 24 draft horses, and 9 wagons.

The squadron consists of 4 officers and 119 rank and file.

The company of guides consists of 2 officers and 46 rank and file.

XVII.—ARTILLERY.

The artillery is divided into field artillery and foot artillery.

(a) FIELD ARTILLERY.

The field artillery consists of 24 regiments of field artillery of 2 field batteries each and 1 regiment of 2 batteries of mountain artillery. Two regiments are assigned to each division as divisional artillery, and 2 to each corps as corps artillery. Total, 48 field batteries and 2 mountain batteries of 6 guns each.

The field batteries are armed with 84-mm. guns and the mountain batteries with 75-mm. guns, of Krupp's system.

STRENGTH.

The regiment consists of 16 officers and 306 rank and file.

The mountain artillery regiment consists of 16 officers and 326 rank and file.

The field battery consists of 7 officers and 153 rank and file.

The mountain battery consists of 7 officers and 163 rank and file.

(b) FOOT ARTILLERY.

The foot artillery consists of position artillery and fortress artillery. The position artillery serves as a support to the field artillery in the attack and defense of fortified positions.

There are five divisions of position artillery each consisting of 2 companies of the élite and 2 of landwehr, and 1 reserve division consisting of 5 landwehr companies.

The fortress artillery numbers 4 companies.

STRENGTH.

The company of position artillery consists of 6 officers and 116 rank and file.

The staff of a division of position artillery numbers 2 officers.

The division of position artillery numbers 26 officers and 464 men.

The company of fortress artillery numbers 12 officers and 223 men.

To the artillery further belong 2 companies of artillery artificers, each consisting of 2 officers and 158 rank and file.

XVIII.—ENGINEERS.

The engineer troops consist of 8 sapper half battalions, 4 field bridge detachments, 4 telegraph companies, and 1 railway battalion.

The sapper half battalion consists of 13 officers and 393 men.

The staff of the half battalion consists of 5 officers and 23 men.

The company of sappers consists of 4 officers and 185 men.

The field bridge detachment consists of the staff, 2 pontonier companies, and a train detachment. The staff of the detachment consists of 4 officers and 4 men.

The pontonier company consists of 4 officers and 119 men.

The train detachment numbers 4 officers and 106 men.

The total field bridge detachment is 16 officers and 348 men.

The telegraph company consists of 3 officers and 27 men.

The railway battalion consists of the staff and 4 companies. The battalion comprises 17 officers and 354 men. The staff numbers 5 officers and 6 men. The company numbers 3 officers and 87 men.

XIX.—THE TRAIN.

The train consists of 16 park columns, 4 to each corps.

The park column consists of 7 officers, 149 men, 114 horses, and 35 wagons

XX.—SANITARY TROOPS.

The sanitary troops consist of 8 divisional hospitals and 4 corps hospitals.

The divisional hospital consists of a staff of 3 or 4 officers and 1 noncommissioned officer, 3 ambulances each consisting of 6 officers and 34 rank and file, and a landwehr train detachment numbering 1 officer and 21 rank and file. Total for divisional hospital, 23 officers and 124 men.

The corps hospital consists of the staff, 4 ambulances, and 1 landwehr train detachment. The staff comprises 6 or 7 officers and 3 rank and file. Each ambulance consists of the same personnel as the divisional ambulance. The train detachment numbers 4 officers and 82 rank and file. Total for the corps hospital, 35 officers, 221 men, and 54 wagons.

XXI.—ADMINISTRATION TROOPS.

The “corps verpflegungs anstalt” (provision column) consists of the staff, 2 administration companies, and a train consisting of staff and 2 detachments. There is one “corps verpflegungs anstalt” for each corps.

The staff consists of 2 officers.

The administration company consists of 10 officers and 41 men.

The train staff consists of 3 officers and 1 noncommissioned officer.

The train detachment consists of 4 officers and 139 rank and file.

Total of the corps provision trains, 33 officers, 361 rank and file, and 96 wagons.

XXII.—THE LANDWEHR.

The organization of the landwehr is based on the territorial subdivision of the country into division districts, but is not carried higher than the brigade.

The landwehr consists of—

- 96 fusilier battalions.
- 8 rifle battalions.
- 24 squadrons of dragoons.
- 12 companies of guides.
- 8 field batteries.
- 2 mountain batteries.
- 15 companies of position artillery.
- 8 park columns.
- 16 train detachments.
- 2 companies of artillery artificers.
- 16 sapper companies.
- 2 field bridge train detachments.
- 4 telegraph companies.
- 4 railway companies.
- 16 ambulances,
- 3 sanitary trains,
- 5 transport columns,
- 8 hospital sections,
- 8 administration companies.

} Hospital service.

XXIII.—THE LANDSTURM.

The landsturm consists of 88 fusilier battalions of 4 companies each, 5 fusilier battalions of 5 companies each, 3 fusilier battalions of 6 companies each, 1 rifle battalion, 17 rifle companies, 23 artillery companies, 36 artillery detachments, and 89 pioneer battalions (410 companies).

All of the foregoing troops of the élite, landsturm, and landwehr are cantonal troops except the following:

Élite.—12 companies of guides, 16 park columns, 2 companies of artillery artificers, 4 fortress companies, 8 engineer half battalions, 4 field bridge train detachments, 4 telegraph companies, 1 railway battalion, 8 divisional hospitals, 4 corps hospitals, and 4 “corps verpflegungs anstalten.”

Landwehr:

- 12 companies of guides.
 - 8 park columns.
 - 16 train detachments.
 - 2 companies of artillery artificers.
 - 16 sapper companies.
 - 2 field bridge train detachments.
 - 4 telegraph companies.
 - 4 railway companies.
 - 16 ambulances,
 - 3 sanitary trains,
 - 5 transport columns,
 - 8 hospital sections,
 - 8 administration companies.
- } Hospital service.

XXIV.—TOTAL STRENGTH.

The total strength of the Swiss army is as follows (January 1, 1895):

Elite	137, 649
Landwehr	80, 602
Landsturm (armed 61,224, unarmed 209,189)	270, 363
Total	488, 614

NOTES ON SMALL ARMS.

RIFLES.

Table A, which shows the principal weights and dimensions of the infantry weapons of the various armies, has been compiled with great care from the latest official data obtainable.

A glance at the table shows that the smaller States, which have but recently rearmed their infantry, have adopted smaller calibers than the great military powers whose armament antedates the former by several years. Should calibers of smaller dimensions prove a decisive superiority over those now employed by Germany, France, Russia, etc., nothing, of course, will be allowed by these nations to stand in the way of a rearmament with the most improved infantry weapon. How far further reductions of caliber will go, it is impossible to foretell at this time, but it may be stated that voices from various quarters begin to make themselves heard against any further reduction in caliber.

While the activity of inventors has been ceaseless during the past year, it seems to have confined itself chiefly to automatic small arms and to improvements on the present models, rather than to the production of new patterns of magazine rifles. The improved Mauser and Mannlicher rifles, or combinations of them, have met with great favor in recent rearmaments, particularly in South America, and, in consequence, Germany and Austria have become the leaders in the manufacture of small arms for service use.

REVOLVERS AND PISTOLS.

Table B, "service revolvers," setting forth the comparative details of the various revolvers of several countries up to date in small-arms armament, has been prepared in this division.

This table has been compiled from the latest official military publications of the various countries, and the inferences to be drawn from a comparative examination of it will probably be of interest.

As will be seen from its consultation, the military powers generally cling to calibers over 0.40, with bullet weight from 180 to 313 grains, although their officers are often supplied with a lighter and less bulky weapon of reduced caliber.

It might be remarked that the United States Colt, caliber .38, has, with the exception of the Swiss dismounted officers', and French officers' revolvers and the new Russian pistol, a lighter weight bullet, by nearly 30 grains, than any other.

It is of interest to note that the Italian model 1890 cartridge, that of the French model 1892, and that of the Russian 3-line pistol are the only cases where the bullets are jacketed, and the Italian and Russian revolvers are the only instances in which smokeless powder is used. Unfortunately the resultant initial velocity is not given, except for the Russian pistol.

CONDITIONS TO BE FULFILLED.

From the trend of professional military opinion of Europe, which generally concides with that of our own experts, it would seem fair to claim that—

First.—The ordinary range of usefulness of, or dependence upon, the revolver in service will be limited to 50 yards or little more, the proof of which lies in the fact that the service arms are generally only so sighted.

Second.—The size, weight, and composition of the bullet, at least in the hands of troops, should be such as to produce the proper shock effect—enough to stop a man, or perhaps even a horse.

From recent official Austrian sources it is learned that while no systematic trials have been made with the Austrian officers' revolver (see Table B), at the same time the Bosnian experience has proved that the shock caused by this bullet, even when fired at a very short range, is not sufficient to put a man immediately out of action.

Again, in Austria during November, 1894, experiments were made with an 8-mm. (.3149-inch) revolver at living animals (I. V. 682.43 f. s.; weight of bullet 202.63 grains, powder 12.35 grains; model 1892).

At a range of 21 yards no shock could be obtained, but wounds inflicted on vital organs were mortal.

From the French reports of experiments held at the "École Normale de Tir," in 1892, the following is quoted:

The revolver M. '73 bullets are incapable, even at the muzzle, of breaking the limbs of a horse. This projectile will not always pierce the back of a human skull, if it strikes with the slightest degree of obliquity, or if the cartridge be at all old or permeated with moisture. (It is stated that some revolver cartridges kept at Tonquin deteriorated in initial velocity so as to only average 90 meters. The bullet under the impulse of this velocity was only able to produce a slight, *i. e.*, not dangerous, contusion.)

The "École Normale" proposed in 1886 to substitute for the revolver bullet, which is of pure lead, a zinc one weighing from 7 to 8 grams, which, fired with an initial velocity of 300 meters, breaks at 50 meters the limbs of a horse or pierces the skull with certainty.

Were the so-called explosive effects, peculiar at short ranges to the high velocities of translation and rotation of the present small-caliber rifle, obtainable with the revolver, the reduction of caliber would appear not only warrantable but advisable.

REPEATING SYSTEMS.

In this connection attention is invited to the repeating pistol and repeating automatic pistols. Many of these are only in the experimental stages. Still there are a few models that have passed highly satisfactory trials.

Opponents to the introduction of these systems into the service claim that they should not be substituted for the revolver on account of the following alleged facts:

First.—The repeating mechanism would be too complicated and therefore more liable to get out of order and be rendered useless in service.

Second.—The tendency would be to a waste of ammunition and consequent chance of a soldier finding himself with an empty weapon at a critical moment.

Third.—With the automatic pistol—the liability to accident, especially to comrades.

In some of these systems the pistol continues firing as long as the finger presses the trigger, *i. e.*, until the magazine is exhausted, therefore the involuntary grasp or pressure of this trigger can be imagined in the hands of a wounded or killed soldier.

The second objection might probably be answered by pointing out the corresponding liability in the double-action principle of some of the present service revolvers.

Naturally the old single-action revolver is safer against accidental discharge than either the double-action revolver or any of the repeating systems.

Advocates of the repeater claim that its introduction is demanded to overcome the following objections inherent in the revolver:

First.—The loss of initial velocity by the escape of gas between the cylinder and the barrel. With slow-burning smokeless powder it is claimed that this loss has in some cases been so great as hardly to drive the bullet through the barrel; and the quick-burning smokeless powder is inclined to produce a "shattering effect."

Second.—The force rendered necessary in reloading the cylinder to overcome the friction of the heads of the exploded cartridge driven against the recoil plate.

Third.—The exterior form made by the cylinder bulging out beyond the barrel, which renders it inconvenient to carry.

Fourth.—The length of time necessary to eject empty shells and to reload.

Fifth.—Too great force of recoil.

In this connection, mention must be made of the recently invented types of obturating revolvers, of which the Russian 3-line revolver is an example. The cylinder has a movement of translation, as well as of rotation, and the cartridge case being longer than the chamber, a portion of the case enters the barrel before the weapon is discharged, thus making a perfect gas check.

Notes on the recent trials of several models of repeaters in Austria and a description of the interesting new Bergmann automatic repeating pistol will be found under the headings of the respective countries to which they belong or where the trials have taken place.

CHINA.

The greater part of the Chinese small-arm rifles used in the last war were Hotchkiss magazine rifles, caliber 0.45, manufactured by the Winchester Arms Company. There were also Schulhof and Winchester magazine guns and Mauser, Dreyse, and Mannlicher single loaders. Many muzzle-loading Tower muskets were also noticed, while old-fashioned wall pieces, petronels, swords, lances, tridents, and arrows revealed the lack of progress in small-arms armament.

JAPAN.

Although the Murata magazine rifle, caliber 0.315 inch (8 mm.), model 1887 (see Table A), has been manufactured, according to all reports, for some years, still it now appears that the rifle generally in use up to March 1, 1895, has been the single loader, 11 mm. caliber, with black powder.

The Murata magazine arm, caliber 8 mm., has been recently issued to the imperial guard and the "fourth division."

NORTH AMERICA.

MEXICO.

Mexico is reported as signing a contract for 8,000 rifles, Spanish model 1894, caliber 7 mm.

In view of the report and claims in favor of the Mexican Mondragon rifle, it would appear that the threatened Guatemalan dispute suggested the order.

CANADA.

According to the *Canadian Military Gazette* the new Martini-Metford rifle that has been recently issued to the Canadian militia, has proved a decided disappointment. After test in the hands of troops, this journal claims, it is not properly sighted and so badly balanced as to make it almost impossible to hold it to the shoulder; again, its excessive weight is alleged to effectually condemn it as a service rifle.

The same journal reports that the authorities are endeavoring to get some substitute for the Morris gallery practice tube (described in No. 4) as the .303-caliber presents much greater difficulties in the use of this invention than the larger caliber. Still, it questions the necessity of the tube on account of the claim that a miniature cartridge has been brought out, which gives excellent practice results with the new rifle.*

UNITED STATES.

The infantry regiments of the United States Army have been armed with the United States magazine rifle, model 1892, and the cavalry carbine of the same pattern is about ready for issue.†

The type of the new navy rifle has not yet been completed; it can be stated, however, that some changes have been made, the barrel having been shortened to 28 inches, with a probable twist of 1 in $7\frac{1}{2}$ (instead of 1 in $6\frac{1}{2}$) with a depth of groove of 0.004 inch.

SOUTH AMERICA.

The states of South America can certainly not be charged with lack of foresight as regards national armament, they having purchased large numbers of rifles, carbines, field guns, rapid-fire guns, and ammunition in Europe. Some of them are engaged in building cartridge factories to enable them to manufacture their own ammunition. It will be remembered that during the Chilian civil war the Presidential party had a number of Mannlicher rifles which were useless from want of ammunition. It will be seen below that Brazil, Chile, and the Argentine Republic are far better provided with modern arms than the United States.

ARGENTINA.

Some years ago the President of the Argentine Republic was authorized by the government to provide a sufficient armament for the nation and was given full powers for this purpose. The small-arms factory of Ludwig Löwe and Company, of Berlin, has delivered

* The debates in the Canadian Parliament during the week ending April 25, 1896, as reported in the daily press, show that Canada has determined to rearm with the latest English patterns of small arms, machine guns, and field artillery. It appears that the ministry desired to raise a loan of \$3,000,000 for the defense of the Dominion. It was officially stated that \$2,000,000 of the sum desired had already been contracted to be paid for arms, equipments, and munitions of war. The supplies purchased of the British War Office included 40,000 Lee-Enfield magazine rifles, 2,300 Lee-Enfield magazine carbines for the use of the cavalry, 24 twelve-pounder guns, 50 Maxim guns, 18,000,000 rounds of rifle ammunition, 12,000 rounds of gun ammunition, and 1,500,000 rounds of ammunition for the Maxim guns. These, with other items, cost \$2,000,000. As for the other million, it was wanted for "emergencies," and the ministry declined, in spite of close questioning by the opposition, to go into any particulars. The opposition was finally withdrawn, and the measure passed.

† The latest models of the United States magazine rifles and carbines are designated as model 1896. The differences between the old and new models are detailed in General Orders No. 14, Headquarters of the Army, March 31, 1896.

to the Argentine Republic 150,000 Mauser rifles and 10,000 Mauser carbines, caliber 7.65 mm., and it is stated that it is intended to order 50,000 more. Krupp has delivered to the Argentine Republic 300 field guns, caliber 7.5 cm. For the small arms a first supply of 10,000,000 cartridges has been ordered from the German Metallic Cartridge Company's works. Meanwhile a factory for small-arms ammunition is being built in Argentina.

A description of the Argentine Mauser rifle will be found in appended table (A).

The following are some data of the Argentine Mauser carbine, model 1891:

The caliber is 7.65 mm. or 0.301 inch; weight of the carbine unloaded and with empty magazine 7.213 pounds, weight filled 7.5067 pounds; length 37.0087 inches.

The barrel is provided with a wooden hand guard reaching from lower band to rear sight. The diameter of the barrel at front sight is 15.5 mm. (0.6105 inch), at the breech 25 mm. (0.98427 inch); length of chamber 51.1 mm. (2.012 inches) falling away to 41.8 mm., which latter represents the length of the powder chamber.

The length of the swell or curve between the powder and bullet chamber is 2.6 mm. (0.102 inch) and the length of the bullet chamber is 6.7 mm. (0.2598 inch). The greatest and smallest diameters vary from 12.05 mm. (0.4744 inch) to 10.95 mm. (0.4311 inch) in the powder chamber to 10.95 mm. (0.4311 inch) at the beginning of the chamber slope and 8.85 mm. (0.34847 inch) at the end of the bullet seat.

The sights belong to the "Rahmen" system (frame with slide). Length between sights, 358.8 mm. (14.1265 inches), number of notches 4, limits of sighting from 250 to 1,200 meters (273.41 to 1,312.36 yards).

The ferreture has a screw motion and is bolted by two upright studs.

Grooves.—Number, 4, concentric with a right twist; depth, 0.125 mm. (0.004921 inch); breadth, 4.2 mm. (0.165 inch); twist, one turn in 25 cm. (9.843 inches); angle of twist, 5.5°.

Magazine.—Central; is filled by stripping a clip (weighing 185.18 grains) of 5 cartridges.

The number of separate parts of the carbine is 70, and of the rifle, 71.

The following are the weights and dimensions of the cartridge: Weight, 416.673 grains; length, 3.07 inches; grooved, not flanged; charge, smokeless flake powder weighing 40.89 grains. The bullet is of hard lead with nickel-copper jacket; length, 1.21 inches (equal to 4.02 calibers); greatest diameter, 7.9 mm. (0.311 inch); weight, 212.35 grains; sectional density, 3.057.

Ballistic data for the carbine are not available.

BRAZIL.

Like her neighbor, the Argentine Republic, Brazil has not been idle in adding to her armament. After purchasing 65,000 rifles, caliber 7.5, Mannlicher model 1893, she has ordered from the small-arms factory of Ludwig Löwe and Company, of Berlin, 80,000 Mauser rifles, caliber 7 mm., and 5,000 carbines, all of which order has been filled, and 40,000 more of these rifles have been ordered in Belgium, where they are manufactured at a somewhat lower rate. Brazil now has in her possession 145,000 small-caliber rifles, 5,000 carbines, and Krupp has supplied her with 50 batteries (6 guns each) of modern field artillery, some heavy guns, and 13 six-inch rapid-firing guns. It is stated that the Brazilian government intends to place additional and larger orders for these guns with Krupp. Brazil is now able to manufacture some of the artillery projectiles and will soon be in position to manufacture all her own ammunition, the machinery for a cartridge factory having been ordered from Germany.

CHILE.

While Brazil and the Argentine Republic have been busily arming, Chile, the most warlike of the South American states, has not been idle. The result of the Chilean experimental commission in Europe was the adoption of the "Spanish Mauser" with some slight modifications in the details of the breech mechanism. It would be more proper, therefore, to give the rifle the designation of the "Chilian Mauser, Model 1895." Chile is believed to have in her possession 60,000 Mausers and has placed an order with Ludwig Löwe and Company, of Berlin, for 60,000 Mauser rifles and 10,000 carbines with bayonet, it being evidently the intention to arm the cavalry with a weapon that will enable it to effectively enter a hand-to-hand contest when fighting dismounted.

In addition to her small-caliber rifles, Chile has purchased from Krupp 200 field guns, caliber 7.5 cm., and 90 field guns, caliber 7 cm.

COLOMBIA.

The United States of Colombia, it is stated, were desirous of arming their forces with the 7-mm. Mauser rifle, but were unable to get a contract to be filled within the limits of time demanded by the government. In order to get a supply of modern small arms, an order for 3,000 Mausers, caliber 7.65 mm., was placed with a firm at Liège.

EUROPE.

AUSTRIA-HUNGARY.

It seems as though the Austrian service rifle may undergo some changes. It is stated that 30,000 rifles, model 1895, have been ordered for experimental purposes, the principal difference between the old and new arm being one of quality of steel and weight. The new rifle is said to weigh but 3.8 kilograms against 4.49 kilograms of the old rifle; the barrel has been lightened considerably, and the bayonet weighs but 370 grams. A wooden hand guard is provided to prevent the soldier's hand from coming in contact with the heated barrel.

It has been recently stated that this improved Mannlicher is to be issued to the landwehr.

According to German sources, military experts are much exercised over a new Austrian infantry rifle lately manufactured at the Steyer factory.

The caliber of this new rifle is 5 mm., with an alleged initial velocity of 2,788.76 f. s.

The maximum height of the trajectory for a range of 1,094 yards is not over 5½ feet, and the corresponding height for a range of 1,312 yards will not exceed that of a mounted man; beyond this range, it will only be necessary to graduate the rear sight for each advance of 200 meters or 218.7 yards.

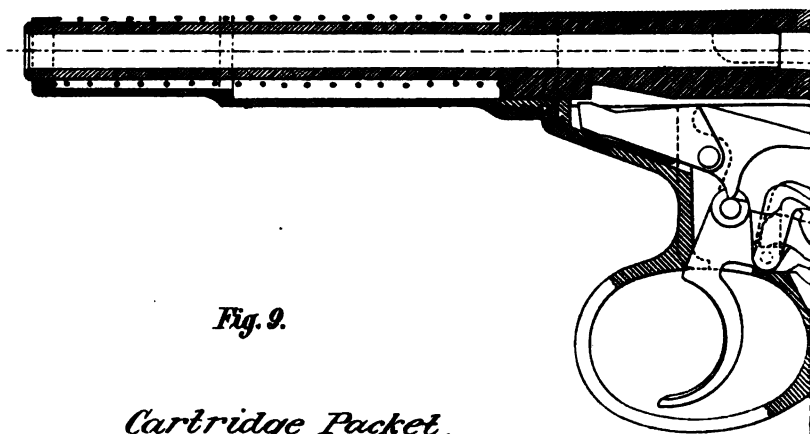
Three hundred and thirty cartridges weigh but 9 pounds. Should these claims be sustained, the manifest advantages of this arm must be admitted.

The great cost of rearming and the fear of the loss in "stopping effect" in so small a bullet can be advanced as the only argument against the wisdom of immediate adoption of this arm.

The latter objection might be met by the demonstrated greater destructive effects, heretofore mentioned, of the high-velocity small-caliber bullet, as illustrated by the past year's firing experiments.

■

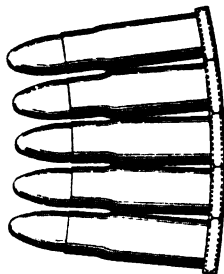
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y. Fig. 5.

Fig. 9.

Cartridge Packet.



*Pistol Close
Hammer at Half
Magazine not*

NOTES ON RECENT TRIALS OF REPEATING PISTOLS.

With the Schönberger system, caliber 8 mm. (0.315 inch), the model 1892 smokeless powder was used. It was found that a priming of black powder had to be used in order to better accomplish complete combustion. But the result was frequent "hang fires" and fouling of the loading chamber and barrel.

The Dormus system of the same caliber was also tried, in which the "1-mm." Ballistite powder was substituted for black; in this case there also resulted "hang" and even miss fires.

The Budapest Company and Kromar system pistols were both submitted for experiment. They were both of 8 mm. (0.315 inch), belonging to the repeating automatic system with movable barrel. Fault was found with the breech mechanism and interruption in the feed.

A new revolver from the Steyer manufactory, model 1893, caliber 8 mm., with rifle powder, model 1892, gave satisfactory results with regard to its mechanism and precision or accuracy.

It is of interest to note that the calibers of these various experimental models were all of 8 mm. or 0.315 inch.

MANNLICHER'S AUTOMATIC MAGAZINE PISTOL.

It is the invention of Ferdinand von Mannlicher (see plate).

Unlike the automatic recoil pistols this has a fixed breech, and it is the barrel alone that moves.

The drag of the bullet pushes or "shoots" the barrel forward against a spring, the shell of the first cartridge being held back until the barrel is well forward, when a projection on the left of the barrel strikes a slide, carrying the slide with it far enough to eject the shell. A fresh cartridge then rises from the magazine, the barrel in springing back encompasses this cartridge, and the pistol is ready for another shot.

The simplicity of the mechanism is remarkable. The inventor claims that it works admirably, as the barrel does not gain sufficient movement to leave the cartridge case unsupported, until the bullet leaves the barrel and the pressure of the powder gas is reduced.

ENGLAND.

Quoting from the memorandum of the secretary of state relating to the army estimates for 1895 and 1896 it appears that—

"The number of magazine rifles completed has sufficed to arm the regular army at home and abroad (including India), as well as the militia. The number in hand would arm the reserve, as well as supply a second arm to the whole of the regular force, including the mobilized reserve.

"The factories will be employed during the year in supplying further demands received from the navy and in completing the carbines.

"The trade will continue to supply rifles to increase the reserve."

Fault has been found with the 0.303 rifle barrel when used in machine guns, as the rapid firing with cordite tends to destroy the rifling. However, this memorandum goes on to state that a barrel of the same caliber, with the different grooves, has been found a complete success.* A large number of the Martini-Henry rifles have been turned in upon the substitution of the Lee-Netford.

* The Metford system will be superseded by a system of rifling called the "Enfield." The magazine rifle with this rifling will be called the Lee-Enfield, but the pattern has not yet been sealed. In the Enfield rifling the number of grooves is 5, depth of grooves, 0.005 inch; width of lands, 0.0986 inch.

It is alleged that the Martini-Henry breech mechanism is without difficulty adaptable to the new 0.303 barrel, consequently the expediency of so converting the arms in store is at present in contemplation.

The new service rifle, the Lee-Metford, according to published reports and the English service papers, seems not only to hold its own, but to grow in professional favor since it has been in the hands of troops.

Its superior merits, it is claimed, are not only demonstrated by the fact that some twelve alleged improved magazine rifles of different models submitted since the adoption of the Lee-Metford were all rejected, but also from the fact that this new arm manifestly led the Martini-Henry as an arm of precision at last year's army and navy rifle meeting at Bisley.

From the annual report on musketry instructions in India, 1893-94, it appears that the British infantry was exercised throughout for the first time with the Lee-Metford and black pellet powder ammunition. This practice is reported as carefully and successfully carried out.

Incidentally, experiments in long and extreme range volley firing were executed, which are worth special notice.

Fifty picked infantry shots fired 10 volleys with the Lee-Metford and black pellet powder at a screen 8 feet high by 25 feet long, erected in the middle of a rectangle 25 by 100 feet. This rectangle represented the assumed position of a battalion. The screen furnished the target although hits upon it were not counted in the results. The first adjustment of the dial sight was for 1,700 yards, then 1,800, then 1,850, and at the fourth volley for 1,900 yards. The ground favored the observation of the hits, and the remainder of the volleys were fired with the last adjustment. The hits on the rectangle were noticed to be evenly distributed over its service, and to strike the ground with considerable force. Total number of rounds fired, 494; total hits, 201; percentage of hits to rounds fired, 40.68.

A general officer who stationed himself in line with the enemy's position so that he could observe their fire in the advance to and development of the attack, reported that, when it was possible to advance under cover, the troops using smokeless powder were not revealed by their fire, and their position was only made known by the fire of the troops using black powder for the purpose of comparison.

Again, in the case of troops advancing by rushes on uncovered ground, using smokeless powder, their successive rushes were clearly distinguishable, while the smoke from troops using black powder made a screen, behind which rear sections or parts of the firing line could advance concealed from the enemy's fire.

The English *Arms and Explosives Magazine* has been suggesting tungsten as the coming or ideal metal for small-arms projectiles. Its advantages over lead must be admitted, as its specific gravity is about 19.2—one-third heavier than lead—and it is very hard and infusible, and tougher than lead.

With this metal the nickel or steel coating so injurious to the rifling would be eliminated. When alloyed with steel it greatly increases its hardness. It is now being industrially used for this purpose. It occurs only as a component of relatively rare minerals, although of fairly wide occurrence, and its process of preparation is very expensive. The only problem then remaining is some cheap method of its preparation.

The *Broad Arrow*, in adversely criticising England's alleged inadequate sources of ammunition supply in case of war, states that the present supply is about 40,000,000 cartridges.

As announced in No. 4 of 1894, experiments with aluminium cartridge cases had not given favorable results, but according to a recent report to this division, a London firm claims to have discovered a new alloy of aluminium which works successfully. The shells

are cut and stamped or drawn out in the same manner as at the Frankford arsenal. The firm alleges that they have tested them, and that the shells will stand reloading and firing for about ten times. The pressure to which they were subjected was about 4,000 atmospheres.

Several years ago, it will be remembered, experiments were made at Pittsburg, Pa., for the purpose of finding a suitable alloy of this metal for shells, but were unsuccessful.

The *Pull Mall Gazette*, in June last, announced that arrangements were then in progress for supplying the army with a new rifle rest, the invention of Mr. W. A. Simpson, the value of which will be apparent for long ranges. It is made of aluminium, rod-shaped, 9 inches long, weight 2 ounces, to be attached to the stock of the rifle by a ball-and-socket joint.

As regards the keeping qualities of the British smokeless powder, cordite, the British service papers state, that after protracted tests in India cordite has proven perfectly reliable.

The old controversy—why a bullet is deflected when the bayonet is fixed—is still undetermined. A report, detailing some experiments with the intent of solving this question, notes some interesting results.

The firing was executed from sand-bag rest, and the result is believed correct.

For instance, the new knife bayonet with sword handle and ring, but with blade cut off, was fixed to the Lee-Metford rifle. When fired at 300 yards range, the bullet went to the left 1 foot 7 inches and low 1 foot 9½ inches.

On the contrary, with the Martini-Henry, equipped with the long bayonet socket, under the same circumstances, the bullet was deflected only 3 inches to the left and 1 foot 9 inches high.

Again, after binding the blade on the barrel in rear of the muzzle, the Lee-Metford bullet hit high 6 inches and to the right 1 foot 2½ inches, the Martini-Henry 1 foot 10 inches high and 1 foot 2½ inches to the right.

Further experiments with the Lee-Metford confirmed the general impression that the fixing of the bayonet causes the bullet to carry low, and in this case, at 300 yards, the drop was even as great as 3 feet 10½ inches.

But again, the Martini-Henry, with the long bayonet fixed, shot 2 feet 10 inches high, although the short bayonet caused a drop of 2 feet 6 inches.

PENETRATION.

From the very interesting "Report of the Small-arms Penetration Committee, 1893 and 1894," the following data are taken:

This committee made extensive experiments to determine the penetration of the 0.308 Lee-Metford bullet in various materials, together with the 0.45 Martini-Henry, and the 0.256 Roumanian Mannlicher; incidentally, the relative penetration and other exterior ballistics of the 0.256 and 0.308 calibers was determined.

The variations in initial velocities of the Lee-Metford ammunition, with the same brand of cordite, show a divergence of nearly 100 f. s.

The committee had at their disposal 1,000 rounds of Roumanian Mannlicher ammunition, loaded with cordite powder, in which the loss of velocity was much more marked and rapid, which was attributed to the erosion of the barrel.

In 1894, however, in a further supply of 15,000 rounds, by an increase of the cordite charge, the muzzle velocity was brought up to 2,400 f. s.

Effect on brick walls.—The important effect of the reduction of caliber is at once apparent from the report on this subject, as in firing at a 9-inch wall volleys of bullets passed through and dropped far out to sea.

The bullets being smaller than the joints, readily passed through in these experiments, while the unmantled 0.45 Martini Henry bullets could hardly have passed; at the same time it is reported that in no case did a projectile penetrate a brick sideways.

At 100 yards a bullet passed through a 9-inch wall joint and then penetrated seven pine boards, each $\frac{1}{4}$ inch thick, while even at 400 yards, 10 out of 25 bullets penetrated the same joints with enough remaining force to go through one or more $\frac{1}{4}$ -inch boards behind.

Again, up to 600 yards, bullets passed through $\frac{1}{4}$ -inch wall joints, and pierced up to seven 1-inch boards, while even with a 14-inch wall, and a range of 400 yards, bullets passed through the wall and penetrated one or more $\frac{1}{4}$ -inch boards in the rear.

At 200 yards, 200 rounds breached a 9-inch wall so that a man could get through, but at the same range it took 1,028 rounds, mostly in volleys of 50, to make a smaller breach in the 14-inch portion of the wall.

Four hundred rounds fired at 400 yards failed to make any great effect on a 14-inch wall on account of too great a dispersion of the hits.

Unless, therefore, the joints are very thin or of cement, the committee concludes that the new bullets will pass through them. However, even with $\frac{1}{4}$ -inch joints these only form about a quarter of the surface of the wall, which should keep out 75 per cent of the single hits in any case, as an old 9-inch wall with $\frac{1}{4}$ -inch joints of hard mortar was proof against all single Lee-Metford bullets.

The committee further concludes that brick walls built for defense should be at least 9 inches thick and have fine joints set in cement; while inferior brick walls with large joints are not entirely bullet-proof even up to 14 inches in thickness at the shorter ranges. Experiments with English bricks placed between boards showed that two thicknesses of $2\frac{1}{2}$ inches of bricks breaking joint practically stopped any one bullet of either Mannlicher or Lee-Metford rifle at 100 and 500 yards, though if a number of bullets strike at one point the bricks are smashed and some bullets get through.

Two rows of English bricks breaking joint, and each presenting a thickness of $4\frac{1}{4}$ inches, if placed together between boards, will stop any bullets at all ranges.

With the Lee-Metford bullet fired against 18-inch sun-dried bricks it appears that the mean penetration increased up to 400 yards, and a few bullets may penetrate up to 500 yards.

The penetration of the Martini-Henry bullet with cordite, and of the Lee-Metford with black powder, is from $4\frac{1}{4}$ to 7 inches into machine-made sun-dried bricks. A 14-inch wall of these bricks appears to be proof against the Martini-Henry bullet, but is penetrated through the joints by the Lee-Metford bullet, even with black powder giving only a muzzle velocity of about 1,800 f. s.

A 24-inch sun-dried brick wall appears to be quite proof a short time after setting. Fresh (green) mud walls would require to be at least from 4 to 5 feet in thickness to stop bullets at any range.

Penetration into steel.—While three-sixteenths of an inch of mild steel or wrought iron was considered proof against the old .45-inch bullet, it now appears that 0.44 ($\frac{7}{16}$) inch is required for safety, but at ranges over 60 yards a .206-inch hardened steel plate weighing 8.75 pounds per square foot will stop the Lee-Metford bullet with an initial velocity of 2,000 f. s.

With the Mannlicher, and an initial velocity of only 2,285 f. s., one bullet in six penetrated the same plate at 25 yards, but failed at 50 yards. Still it would appear necessary for sap shields to be of $\frac{1}{4}$ -inch hardened steel to be proof against these latter bullets, though against the 0.303 bullets plates of 0.2 inch of full gauge will practically suffice.

On the other hand, a plate of less than 0.088 ($\frac{1}{16}$) inch resisted the Lee-Metford and also the Mannlicher bullets at 500 yards range, even with a greater initial velocity for the latter.

This plate weighed only 3 pounds 10 ounces per square foot, and, should artillery take to protection against musketry, such a thickness would suffice, as it can be fairly assumed that artillery will but rarely be engaged within 500 yards, while the objection to a serious addition to weight is in great measure removed.

Penetration into timber, sand, etc.—The general results of the penetrations with the new small-caliber rifles with mantled bullets, as compared with the Martini-Henry, show a considerable superiority; the shorter the range and the harder the material the more marked this is, though at 500 yards the Lee-Metford and Mannlicher penetrations into timber are about the same, having fallen off about one-half from those obtained at the muzzle. At the shorter ranges their penetration through fir boards is much greater than that of the Martini-Henry. At 1,500 yards, however, the penetrations are about equal, and at the larger ranges the Martini-Henry penetrates rather more boards.

Green timber has, against the mantled bullets, only about the same resistance as dry, and it is therefore clear that at ranges much under 1,000 yards timber balks and standing trees will not generally offer much protection, except against ricochets, while at the longer ranges they will suffice.

As regards sand, in firing at 3 yards, the Lee-Metford bullets, in some few cases, showed signs of smashing up, while with the Mannlicher, though the velocity was under 2,300, they nearly all smashed up and had little penetration. In one or two instances at this short distance, these larger bullets showed signs of bellying in the

middle, the cause being, probably, the fusion or softening of the lead. This points to a limit of initial velocity beyond which the bullets will be ineffectual against sand cover.

The penetration of the Martini-Henry into sand at 25 yards is greater than the Mannlicher, while at 1,000 yards the latter has a greater penetration.

The new bullets penetrate nearly $3\frac{1}{2}$ feet into clay, and this falls off but little up to 2,000 yards.

The penetration of the Lee-Metford into sand between boards is less than 18 inches at any range, being but a little superior to the Martini-Henry.

A thickness of three inches of large flint shingle (gravel) between boards smashed up and stopped all bullets, even at the shortest ranges, but a greater thickness of finer shingle was required to do so.

General results as to penetration.—The general results as to penetration with the new small calibers seem to be that with the improved steel, the same thickness as with the Martini-Henry will suffice, though a greater thickness is required with ordinary mild steel. Timber of itself is no longer a protection at short ranges, owing to the great thickness required.

On the other hand, a much smaller quantity of timber, in the form of boards, made into some form like a trough, with gravel or sand between, will stop the new bullets.

Stockades of planks with sand, gravel, or dry brick cores, will now replace the heavy timber balks formerly used. In the absence of gravel, the committee recommends a few inches of macadam for the core.

Not much change is required in sand parapets, but damp clay embankments must be much thicker, as must those of loam, unless a hard core is inserted.

A navy coal sack filled with coal and 12 inches thick is impenetrable.

Times of flight.—The great superiority of the new arms in the actual time of flight is at once apparent.

Thus, while with the Martini-Henry rifle the velocity exceeded the normal velocity of sound only up to 800 yards, with the Lee-Metford and Mannlicher the bullet keeps ahead of sound up to about 1,600 yards, or double the former distance.

It is noticeable with the Lee-Metford that the observed times of flight are less than the calculated up to 3,000 yards, and in case of the Mannlicher this is true also at least up to 2,000 yards.

The Lee-Metford begins to overtake the Mannlicher at about 1,500 yards, and from that out has more rapid times of flight.

The committee calls especial attention to this remarkable result, as the Mannlicher bullet has a greater sectional density than the Lee-Metford, namely, 0.3488 against 0.3386. On the other hand, the Martini-Henry, with a sectional density of 0.3386, slightly greater than that of the Lee-Metford, has a relative advantage at the longest ranges. Thus, at 1,000 yards its time of flight is 32.4 per cent longer than the Lee-Metford, while at 3,000 yards it is only 30.1 per cent longer. All this, it is thought, points to some air retardation, possibly skin friction, which increases relatively to the smallness of the bore.

As compared to the Martini, the new bullets show a great superiority in time of flight; for instance, the Lee-Metford at 3,000 yards is 3.5 seconds ahead of the Martini.

Therefore, at the longer ranges the bullets are exposed for a much less time to the deflecting influence of the wind, an element of great advantage in long-range shooting.

Against this, however, is the fact of their less specific gravity, which diminishes slightly with the caliber.

The committee thought that the calculated remaining velocities were too low. Both .303 and .256 inch bullets, judging by sound and effect, were perfectly steady in flight, and struck end on, even up to the extreme ranges; but the penetration of 7 and 8 inches into loam at 3,500 yards and of 5 inches into hard, wet sand at 3,700 yards would hardly be attainable with such low remaining velocities. It is suggested that, as was found with the Martini, after a certain range the remaining velocity increases owing to the acceleration due to gravity being greater than the loss by air friction.

One point more was noticed, viz, that while at long ranges the sound of the Martini bullet hardly attracts the attention of troops, the Lee-Metford makes even less noise, and the approach of the Mannlicher projectile is only just perceptible to trained ears at 2,500 yards and over, a fact that increases the difficulty of recording results at ranges of $1\frac{1}{2}$ to 2 miles.

Extreme ranges.—The greatest observed range, 3,760 yards, was obtained with the Lee-Metford with 29 degrees elevation and with a brisk rear wind, while 23 degrees 45 minutes gave a range of 3,500 yards on the same occasion.

In a perfect calm at sea level, a range of 3,500 yards was obtained with elevations varying from $27^{\circ} 30'$ to $28^{\circ} 30'$, so it is apparent that in the previous case the wind increased the range 250 yards. At 3,000 yards and over, wind is the dominating factor. With a very slight rear wind 32° degrees gave the maximum range, 3,650, that day.

From the foregoing it seems that 4,000 yards is beyond the extreme range of the Lee-Metford, but the projectile will kill up to the extreme range.

At ranges of over 3,000 yards, owing to the difficulty in hearing the bullets strike, the extreme range of the 0.256 bullet was not determined, but as the elevation required with it for 3,000 yards was 15° as compared with 12° 17' on the same day in the case of the 0.303 bullet, it is probable that it does not range as far as the latter.

Angles of descent.—The main advantage gained in the new small-caliber rifles is the relative flatness of their trajectories; in these experiments the Martini was much inferior.

At 1,000 yards the average drop of the Mannlicher with over 2,200 f. s. initial velocity is about 1 in 28, while the Lee-Metford is 1 in 26, and the Martini 1 in 13.8.

At 1,500 yards the Lee-Metford and the Mannlicher have about the same drop, viz, 1 in 10.4, after which the drop from the Mannlicher relatively increases. At this range the drop of the Martini is about 1 in 6.87.

The angles of fall or drop for the Lee-Metford, Mannlicher, and the Martini-Henry at 2,500 yards were 1 in 3.14, 1 in 3, and 1 in 1.89 respectively.

At 3,000 yards the Lee-Metford only drops about half as much as the Martini, i. e., 1 in 1.39 compared with 1 in 0.69, the corresponding elevations being 14° 15' and 25° 20'.

Ricochet experiments.—Ricochet experiments with the Lee-Metford were carried out at short range on a smooth level hard sand surface.

The ratio of mean drop to mean rise was 1 in 77 to 1 in 57, or as 18 to 18, while with the Martini-Henry the mean rise was double the drop.

The maximum observed rise was thirteen times the drop.

The committee observed that deflections occurred both to the right and left, the mean being only about one-quarter as great as with the Martini, which averaged 1 in 100.

The maximum observed deflection was only 1 in 114 and to the right. With the Martini the deflections were all to the right, an unexpected result as the twist in the arm is to the left.

Many Lee-Metford bullets at 2,000 yards on level turf did not rise; those that did had a rise of twice the drop.

At 2,500 yards, only about 5 per cent of the Lee-Metford bullets ricocheted off turf, the drop being here 1 in 3.14; while the limit of ricochet with the Martini, in previous experiments, was found to be 1 in 3.4 on sand.

At 3,000 yards and over, though there were a few ricochets off gravel or shingle, none of the Lee-Metford bullets ricocheted off turf.

In the case of the Mannlicher no ricochets off turf were noticed at 2,500 yards and over.

Most of the ricocheted bullets appeared to turn over in these experiments.

General considerations and the relative merits of the Mannlicher and the Lee-Metford rifles conclude this instructive report, which the committee summarizes as follows:

The bulk of ammunition for each is about the same. The weights of 150 rounds of each are, respectively, 7.271 pounds and 8.807 pounds, or 1½ pounds in favor of the Mannlicher.

When fired rapidly with an initial velocity of 2,400 f. s. the Mannlicher rifle became extremely hot and the firing erratic. The barrel was also more worn with 1,500 rounds fired from it than was a Lee-Metford fired 3,000 times, which it is alleged was not affected.

On the whole, therefore, the balance of advantage as regards penetration is so far rather with the Lee-Metford, which also leads in drop and times of flight at long ranges.

The main advantage of the .256-inch rifle is the greater flatness of its trajectory, and consequently increased dangerous space at the decisive ranges.

The importance of this outweighs all other considerations so long as the very small bullet is efficient against troops.

The accuracy of this rifle when once its sighting was attained was extremely good, rather better at 1,000 yards than the Lee-Metford. Markers, etc., at the long-range targets are cautioned against going out as soon as the danger flag is lowered, and should bear in mind that at the extreme ranges the time of flight is not very much under half a minute—plenty of time to go out and be shot in front of the target.

The following "Summary of average results" with the .303-inch, .256-inch, and .45-inch rifles was copied from this same report:

Summary of Average Results with .303-inch Lee-Melford, .50-inch Mannlicher, and .45-inch Martini-Henry Rifles.

.303-INCH LEE-MELFORD RIFLE, MUZZLE VELOCITY 1,975 F. S.

THICKENESS OF MATERIALS PROOF AT A GIVEN RANGE.											
Range in yards.	Angle of departure.	Drop of 1 in—	Time of flight.	Hard steel.	Mild steel.	Oak.	Elm.	Teak.	Fir.	Sand.	Clay.
	° ' "	Seconds.		Inch.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
3	—	—	—	—	—	27	33	36	48	20	42
25	—	—	—	.20	.44	—	33	28	45	—	—
100	—	—	—	.17	.375	21	24	24	40	16	42
500	—	—	—	.1	—	13	13	14	24	15	40
600	—	—	—	.09	—	—	—	—	—	—	—
1,000	1 32	22.55	2.5	—	—	6	9	7	16	14	40
1,500	3 16	10.8	4.5	—	—	6	6	6	10	9	38
2,000	5 0	6	6.65	—	—	3	4	4	8	5	36
2,500	8 25	3.14	10.125	—	—	2	2	3	4	4	30
3,000	14 15	1.39	15.065	—	—	2	2	2	3	4	24
3,500	26 0	.699	24.04	—	—	2	2	2	3	4	15

A thickness of 20 inches of compressed cotton will just stop the Lee-Melford bullets at short range. The penetration diminishes rapidly with increased range.

.50-INCH MANNLICHER RIFLE, MUZZLE VELOCITY 2,285 F. S.

Range in yards.	Angle of departure.	Drop of 1 in—	Time of flight.	Hard steel.	Mild steel.	Oak.	Elm.	Teak.	Fir.	Sand.	Clay.
	° ' "	Seconds.		Inch.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
3	—	—	—	—	—	27	33	36	48	20	42
25	—	—	—	.25	.44	—	33	28	45	—	—
100	—	—	—	.2	.375	28	32	30	45	12	40
500	0 42	—	—	.13	—	17	18	14	27	15	24
600	—	—	—	.09	—	—	—	—	—	—	—
1,000	1 5	27.1	2.2	—	—	6	8	7	18	15	15
1,500	2 58	10.93	3.8	—	—	4	3	4	10	8	12
2,000	—	5.45	6.65	—	—	3	3	3	8	5	12
2,500	9 15	2.40	11.15	—	—	2	2	2	4	3	12
3,000	15 30	—	16.56	—	—	—	—	—	—	—	—

A thickness of 18 inches of compressed cotton is amply sufficient to stop the Mannlicher bullets, which all break up at short range.

.45-INCH MARTINI-HENRY RIFLE, MUZZLE VELOCITY 1,300 F. S.

Range in yards.	Angle of departure.	Drop of 1 in—	Time of flight.	Hard steel.	Mild steel.	Oak.	Elm.	Teak.	Fir.	Sand.	Clay.
	° ' "	Seconds.		Inch.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
25	—	—	—	—	—	27	33	36	48	20	42
1,000	2 49	13.8	3.31	—	.125	—	—	—	—	—	—
1,500	5 15	6.87	6.65	—	—	—	—	—	—	—	—
2,000	9 7	3.56	8.50	—	—	—	—	—	—	—	—
2,500	14 25	1.99	12.55	—	—	—	—	—	—	—	—
3,000	25 30	.69	19.65	—	—	—	—	—	—	—	—

The Martini-Henry bullet is just stopped at 50 yards by 20 inches of compressed cotton.
These results are from experiments made in 1879-1880, excepting those marked *ee*, which were obtained in 1894.

*The same oak balks were used in this case.

†This applies to moist, tenacious clay. If the latter be soft and wet, a greater thickness will be required.

†The bullets break up at the short ranges, hence the greatest penetration into sand and loam is obtained at about 500 yards.

‡The clay in this case was very hard and dry and a greater thickness of moist clay would be required.

GERMANY.

SWORD.

It is reported that the introduction of a new model of infantry officers' sword with a black scabbard of wood, covered with India rubber, is under contemplation. (See "Number 4," page 88.)

A few of these swords have been recently issued for experiment, the result of which is to be made known after a six months' trial. These swords in design resemble the navy arm, although the shape is quite similar to the present service weapon.

RIFLE.

A recent report states that the Germans intend to add to their rifle a device to prevent the danger of double feed.

This consists of an automatic bolt stop or check which after the bolt has started forward, will prevent retraction of the bolt beyond the flange or base of the next cartridge, until this bolt stop is released by pushing the bolt fully home. This does not provide for single firing; it merely applies the automatic principle to a cut-off of familiar construction.

THE BERGMANN AUTOMATIC REPEATING PISTOL.

The following description and illustrations of this new patented pistol are taken from a trade pamphlet recently published by its inventor, Th. Bergmann, and its agents:

THE DIFFERENT PARTS OF THE ARM.

A.—*The frame* with different cavities for the cylinder, the lock, the magazine, and the two halves of the stock, the ejecting notch *k*, and the butting stud and nut *m*.

B.—*Bolt*. Six parts:

1. Lever screw.
2. Firing pin.
3. Sliding stop nut.
4. Bolt cylinder.
5. Slide bar.
6. Spiral spring.

C.—*Lock*. Seven parts, numbered as follows:

7. Side lock, plate, and screw.
8. Hammer.
9. Trigger with articulated piece and spring.
10. Tumbler.
11. Spring of the tumbler.

D.—*Magazine*. Six parts:

12. Screw, holding in place 14 and 18.
13. Spiral spring, which acts on 14.
14. Pin (inside of spring 13), acting on 17.
15. Magazine cover screw.
16. Magazine cover.
17. Magazine cartridge feed lever.

E.—*Stock*. Five parts, numbered as follows:

18. Stock screw.
19. Two stock side pieces.
20. Mainspring.
21. Carrying swivel.

F.—*Barrel with foresight*.

G.—*Cleaning rod*.

H.—*Lever safety*.

Total number of parts is 29.

PRINCIPLES OF CONSTRUCTION.

It will then be seen that this pistol is composed of the following principal parts: The frame (A), the barrel (F), the stock (E), the lock (C), the magazine (D), and the bolt (B).

The first four do not present anything new, but the bolt and magazine are new inventions and have, it is claimed, not been employed in other arms up to date. These two novelties are sufficient to characterize this arm as one of the most interesting of the day.

The magazine can be opened and filled by a single touch on the side of the weapon and offers considerable advantages in loading and unloading.



View of the magazin

The bolt does not require the secure locking heretofore considered so essential, and therefore the corresponding stiffness and difficulty of movement are eliminated.

The weight of the bolt which serves to close the cartridge chamber is so adjusted to the back pressure of the gases, that the inertia of the bolt will only be overcome after the bullet has left the bore.

There can therefore be no loss of gas pressure, as it is all taken up in the inner surface of the bottom of the cartridge shell, thereby pushing the bolt back until it touches its limit; at the same time the bolt compresses a spring, which serves to throw it back toward the barrel. (The empty cartridge shell is thrown out in the meantime.) The lever of the magazine (17) forces a new cartridge toward the bolt, which grasps it and pushes it into the barrel.

The lock differs somewhat in use from the ordinary ones because of its peculiar trigger. The pistol being cocked by and after the shot with such rapidity that the finger could not be used quickly enough to allow the trigger time to regain its former position, it was therefore found necessary to insert the articulated piece (*s*) forming a spring, between the tumbler and trigger. This piece allows the tumbler to move freely even while pressing on the trigger. As soon as the trigger is let loose the aforementioned piece (*s*) is placed against the tumbler and, so to speak, unites itself with it, so that the tumbler may work and the hammer fall even while the finger is pressing on the trigger.

Safeties of various kinds can be applied to the pistol, but up to the present time, only two have been chosen. One is known as the left-handed lever which, by locking into the trigger, stops the working of the hammer, cocked or uncocked. The other consists of a plate which is so adjusted as to cover the left side of the trigger hole, and the lower end hooks under the trigger, as may be seen by fig. (*g*), the trigger then can not be moved until the plate is pushed aside by inserting the finger.

Working.—As soon as the hammer hits the firing pin (2) the cartridge explodes; the gas pressure works equally on all sides. The projectile being much lighter than the cylindrical bolt soon has a more accelerated movement than the heavier cylinder (4), the latter with its supporting spring and empty shell jammed against the side of the barrel forms a sufficient bolt during a limited lapse of time (until the bullet has left the barrel). The bolt (4) driven backward throws the hammer back. The empty cartridge follows this retrograde movement and impinges against an ejecting stud in the cylindrical seat of the bolt and then flies out. The bolt is checked at (*m*), which projecting stud limits its backward movement; it is then guided back into its former closed position with the slide (5) and its spring (6). Whilst moving forward the bolt pushes a new cartridge (*p*) from the magazine (*n*), the cartridge in the meantime having been pushed into position in the chamber behind the barrel by the cartridge lever (17). The arm is then again ready for firing.

LOADING.

The loading can be done either by inserting a single cartridge in the chamber, or one by one, or in clips of five (small iron packets or clips) in the magazine. For firing single shots it suffices to insert a single cartridge in the chamber at a time. To load, take the pistol in the left hand, place the left thumb on the small round plate (*v*), on the side plate of the magazine (16), and press it sideways as far as possible until the magazine side plate opens, insert the cartridges singly or in packets of five, close the lid with the left hand and with the right withdraw the iron envelope or the packet. The magazine now being charged, take the bolt (4) (close to the screw 1) between the thumb and the forefinger of the right hand and draw it backward until it cocks the hammer (8). Now let the bolt which has already allowed a new cartridge to spring out of the magazine slide back again. The arm is now ready for firing. When the shot has been fired by pressing the trigger (9), the bolt slides backward, ejects the empty shell, cocks again the hammer and in moving forward pushes before it another cartridge into the barrel. This continues as long as there are cartridges in the magazine, and the trigger is pressed.

If only one cartridge is to be placed in the chamber, draw the bolt back with the right hand as already mentioned, hold it in this position by pressing with the fingers of the left hand on the grooved part of the slide (5) until a cartridge has been placed in the chamber with the right hand. This done, let the bolt, which has also cocked the hammer slide back again.

By first placing a cartridge in the chamber and then a clip of five in the magazine, six shots may be fired; or in continued firing, the last cartridge should be left unfired in the chamber before inserting a new package.

The dismounting of the arm is very easily accomplished by following the number marked on the different pieces, commencing by unscrewing the screw (1), whereupon (2) and (3) then fall out toward the right. Draw the bolt (4) out of its seat, and then press the slide (5) gently backward and sideways and the spring will drop out.

The construction is so simple that the above dismounting can be accomplished without the aid of a screw-driver, and should it be necessary to further dismount other parts a coin can be used instead of a screw-driver. In cleaning, only parts 1 to 4 need to be dismounted, since then every part can be reached through the open magazine by means of a cleaning rod and rag. After cleaning, all metal parts should be lubricated with good machine oil free from acids.

ADVANTAGES CLAIMED.

This repeating arm compared with the revolver, has the following principal advantages:

1. Five or six cartridges can be fired consecutively without interruption, by a slight pressure on the trigger and without turning a drum or cylinder or without cocking the hammer.
2. Slighter shock or recoil and therefore more accurate aim.
3. Greater velocity, penetration, and precision, even when using the revolver cartridges.
4. Automatic ejection and reloading.
5. Rapid recharging with a fresh packet of five cartridges by a single operation.
6. Less cumbersome and more symmetrical in shape, presenting fewer salients, and therefore easier to carry on the person.
7. Simpler mechanism affording greater ease in assembling.
8. Fewer complicated parts and more easily cleaned.
9. Better results with smokeless powder.
10. If desired, cartridges without a flange or rim, which are cheaper, can be used.
11. No harmful loss of gas.
12. More cheaply manufactured on account of fewer and simpler number of parts.
13. No exertion needed to turn the cylinder or drum.

Dimensions and weight of this pistol depend upon the kind of cartridge to be used, as is equally true with the revolver. The maximum width or thickness of the Bergmann arm, in all cases, is much less than that of the revolver, because the cylinder, which makes the latter so cumbersome, does not exist in the self-loader. Unfortunately this pamphlet fails to give the exact weight of the arm.

All cartridges suitable for revolvers can be employed as long as they are charged with smokeless powder. A cartridge strongly recommended is Bergmann's model without flange and neck (z). Cartridge shells of this model are made much cheaper than those with rim and neck.

The precision depends on the quality of the cartridge and the style and finish of the bore. The arm being lighter on the trigger than is the revolver, the precision of an automatic repeating pistol can not be otherwise than superior, especially in quick firing.

This pamphlet is accompanied by a sheet on "results of the trials made by the superintendent of the technical division of the Swiss war office, Berne, with Bergmann's patent automatic repeating pistol as compared with the Swiss regulation revolver," as follows:

The ammunition used was white powder (smokeless), and in two different charges—first, 0.18 gram, and second, 0.20 gram. The corresponding results to be compared are given in columns I and II.

The results of the same quantity of black powder fired in the revolver, showing the contrast between it and white powder, are also given.

The cartridge shells and projectiles were the same for all kinds of ammunitions, the powder charges only being changed.

	Bergmann's pistol No. 5.		Swiss regulation revolver No. 2996.		
	I.	II.	I.	II.	Black powder.
Bore millimeters.	7.75	7.75	7.45	7.45	7.45
Depth of rifling do.	0.15	0.15	0.20	0.20	0.20
Cartridges:					
Date of manufacture	May 16, 1893	Oct. 9, 1893	May 16, 1893	Oct. 9, 1893	Oct. 10, 1893
Kind of powder	White.	White.	White.	White.	Black.
Charge gram.	0.18	0.20	0.18	0.20	1.00
Range meters.	225.6	233	130.4	190.1	210
	220.2	227.5	160.8	158.9	202.8
	227.8	238.7	145.9	162.9	200.4
	222.4	233.3	152.6	169	205.6
	221.8	237.4	158.4	155.2	204.4
	218.4	233.6	148.8	157.8	189.2
	225	238.4	147.5	177.9	214
	213.1	223.4	162.2	158.6	210.4
	219.8	233.6	159.7	189.1	204
	211.5	230.7	143	159.2	210.8
Average range .. meters.	220.1	233	150.9	167.9	205.16
Greatest variation .. do.	16.8	15.3	31.8	34.9	24.8

The penetration (as stated in pamphlet) compared with the Swiss army revolver, 1886, at a distance of 6 meters, has given the following results:

Swiss revolver pierced 23 small wooden planks, each 4 mm. (0.157 inch) thick, and 12 steel plates, 0.3 mm. (0.0118 inch) thick.

Bergmann pistol penetrated 37 small wooden planks, and 23 steel sheets of corresponding thickness.

Attention is called to the above statement as pointing to the considerable loss of gas which escapes between the cylinder and barrel of the revolver.

The above-mentioned trials were made before General Gressly at Berne, and certified to by his signature.

The Belgian war office is alleged to recognize and confirm the advantages claimed for this self-loading arm.

The inventor further states that this system can be applied to arms for private use as well as to the one just described, which is intended for a military weapon.

The arm can be arranged to use all kinds of cartridges, so long as they are charged with smokeless powder.

HOLLAND.

The 1895 budget appropriates 2,500,000 florins (about \$1,005,000) to commence the manufacture of the new 6.5 mm. Mannlicher, and to establish the necessary workshops, etc., within the Amsterdam fortifications, for the fabrication of this arm and its ammunition. One hundred and forty thousand rifles and carbines, with a supply of 400 cartridges per arm, will be the first need that this plant will supply.

The estimated total expense is 9,000,000 florins (about \$3,618,000).

ITALY.

The *Italia militare e marina* reports that Captain Cei of the Italian army has invented a rifle bearing his name and tested it on the polygon of Cassines near Naples. The rifle is of the automatic type weighing 5.5 kilos and if it comes up to the claims made for it, it will put most of the former similar inventions in the shade. The inventor seems to think that he can reduce the weight. The arm is loaded automatically and all the soldier has to do is to aim and keep the trigger pressed back, when the rifle fires until the trigger is released. The arm can be used as a single loader. The inventor thinks that his gun may replace machine guns by putting several of his guns in a bundle.

RUSSIA.

At the end of March, 1895, 1,000,000 of the new "three-line" (.3-inch) rifles, including 500,000 from Châtellerault, France, had been delivered to the troops and depots.

For 1895, the Tula works are to make 250,000 infantry rifles, and 50,000 steel clips; the Izief works, 100,000 infantry and 70,000 dragoon (cavalry) carbines, and 30,000 cossack rifles without bayonets; the Sestroretsk works (Finland) 50,000 infantry rifles.

The Cossack rifles differ from the dragoon only in having no bayonet and no trigger guard.

The present daily (14 hours) capacity is as follows:

	Rifles.
Tula works turn out.....	900
Izief works turn out	460
Sestroretsk works turn out.....	250
Making a total daily capacity of	1,610
And the annual estimated output	500,000

The total of the budget for 1894 for the small-arms committee was 40,147,000 rubles, and the same for 1895 is 30,353,355.

SPAIN.

The minister of war, June, 1894, stated to the Cortes that the German house of Löwe & Co. had offered to furnish 120,000 Mauser (model 1893) rifles at 77 pesetas gold, or say 100 paper (\$15.00 gold or \$20.00 paper) within 12 months.

A deputy in reply remarked that Oviedo would require two or three years' preparation for serious work on the Mauser, and then would turn out annually only some 20,000; and that as only some 9,240,000 pesetas (\$1,848,000) were needed for the new armament, the amount would be distributed over the budgets of several years. He also stated that the factory at Oviedo could produce the rifles for 80 pesetas (\$16.00) in paper.

From a report dated December 19, 1894, it is learned that the minister of war stated to the Cortes that some 35,000 of these new Mausers were being made by Löwe & Co., and that 8,000 were then in Hamburg ready for shipment. The house has also a contract for 5,000 carbines, and 1,200 rifles (7.65 mm.) are to be furnished for Puerto Rico.

The Melilla Mausers (10,000 rifles, 7.65 mm., and 5,000 carbines, 7.65 mm.) have been shipped to Cuba.

The above-mentioned 8,000 rifles have since arrived in Madrid and have been ordered to be distributed to the brigade of foot chasseurs, the regiment of Labaya, and the regiment of San Fernando.

Spanish sources report the range of model 1893 Mauser as 4,000 meters (4,374 yards), also the precision at 500 meters (547 yards) to be equal to that of the German arm at 300 meters (328 yards).

At the same time it may be said that during the first second the ball of the former covers 728 meters (796 yards) while that of the latter (7.9 mm.) covers 645 meters (705 yards).

In February, 1895, the minister of the navy presented to the Cortes a budget item for 1,500 Mausers for the Phillipines, and for a sufficient number for the *Marques de la Ensenada*, *Alfonso XIII*, and the *Lepanto*, with ball and blank cartridges; all to be ordered from Löwe & Co.

The minister of war was reported, last February, to have stated to the Cortes that it was then proposed to transform the present Remington into a caliber of 7 mm., but without magazine, thus giving a uniform caliber throughout the service.

A French house offered to make this change at the rate of 25 pesetas (\$5.00) per rifle, at the same time guaranteeing, with the Mauser cartridge, the same ballistic results; also, agreeing, from date of contract, to alter 10,000 monthly, this number to be increased as the work progresses. Upon completion of the new Mauser armament the transformed Remingtons would be stored for the reserves.

It is reported, however, that the Remingtons in use are old and service-worn and hardly in condition for war, and therefore the advantages would not be commensurate with the great cost of conversion.

In the Carabanchal camp during target practice (June, 1894) many complaints were reported of longitudinal flaws in the neck of the cartridge shells, and of the bullet being so loose that in some cases it fell out entirely, while in other cases the bullet was forced down too far upon the powder. In addition to the consequent variations in the density of the charge and its ballistic results, the shell, tearing and splitting in the direction of its length, and even around its head or base, permitted the escape of gas into the chamber; on one day particularly, it was reported that several of the heads of the shells were torn completely away from the bodies of the same, and in some cases men were so badly disabled that it was necessary to send them to the hospital.

It is said that this is of frequent occurrence. Similar trouble was constant during the fall maneuvers of the First Corps in 1894. While the foregoing refers to the Freire-Brull cartridge, yet complaints have been made as well about the Mauser cartridge (7.65 mm.), more particularly perhaps regarding the clasp or hold of the neck of the shell on the bullet.

The Mauser cartridges have, it is alleged, not been found satisfactory; a factory in Carlsruhe, Germany, has heretofore had the Spanish contracts.

Again it is said that the Mauser smokeless powder cartridges can not, without deterioration, be stored as long as those with black powder, and it is therefore necessary to replace the service stores from time to time.

THE ARMORY AT OVIEDO.

The offices of these works are located in an old convent, with several one-storied brick detached shops, on the very border of the town. Some 420 persons are there employed; routine work of repairs of the small parts of the existing armament occupying the attention of the establishment. One of the detached shops has recently been greatly enlarged to afford room for the new machinery expected from Germany for the manufacture of the new Mauser. It is stated that a new contract was signed July 6, 1894, with Löwe & Co., of Germany, for 156 machines, and that they were to be supplied in November, the annual capacity of which will be as stated below.

In addition to the existing motors several more have been ordered from England and Belgium.

Besides the many machines of English, German, and Belgium manufacture there are several of American, which give the most excellent satisfaction.

Hammers of 25, 500, 700, and 1,000 foot kilos are employed, and the American "Ames" gunstock machine has recently been altered for use in making the new Mauser stock, which is in one piece, while that of the Remington is in two.

These works claim an annual capacity, it is said, of some 26,000 to 28,000 rifles, *i. e.*, if the barrel, in the rough and rough-bored, be provided as now from abroad. Barrels are purchased in Belgium and France, 600 having been recently ordered from the latter country. The Oviedo works have been authorized to purchase the necessary material for the manufacture of 2,000 rifles, Mauser's model 1893. It is estimated that five men in a day's work, as a rule, are necessary to turn out a rifle.

According to report dated January 22, 1895, small-arm cartridge machinery was en route from Germany to Toledo, where it is to be set up in the sword works.

About 40 battalions of Spanish infantry of the army of operation in Cuba are armed with the Mauser. Most of the cavalry in Cuba is armed with the Mauser carbine. The battalions which sailed for Cuba in November, 1895, were, however, armed with the Remington. The last battalions sent to Cuba in February, 1896, were also armed with the Remington.

TURKEY.

In addition to her 500,000 Mauser model 1887, caliber 9.5 mm., already delivered, Turkey has recently placed an order with Löwe & Co. for 200,000 Spanish Mauser model 1891, caliber 7.65 mm. The rifles were manufactured at the Mauser factory in Oberndorf-Württemberg, which is now in partnership with Löwe & Co.

NOTES ON EQUIPMENT AND THE USE OF ALUMINIUM.

In England barracks are rather better than what we have on the frontier, but not nearly as commodious and convenient as those at our larger and more recently built posts.

The stables are kept scrupulously neat. They are paved and the horses given much more bedding than we allow ours; the same was noted in both Germany and Austria. At inspections a neatly woven border of straw is placed along the heelposts the entire length of the stables, and it was frequently noticed that parts of the woodwork, such as the horizontal poles between the stalls, and the heelposts, against which a horse might be injured, were covered with neatly plaited straw braid. Certainly in the matter of neat, attractive-looking stables, the English, Germans, and Austrians can teach our stable sergeants valuable lessons.

Saddles and other articles of horse equipment, as well as all parts of artillery harness are the natural buff color of the leather in all European services. Halter shanks for garrison use are made of rope, instead of leather as with us; the rope is stronger and less expensive. The Belgians use a tarred rope about the diameter of our new lariat.

MEAT CAN OR COOKING UTENSIL.

The English, Belgians, French, Germans, Austrians, and Italians all carry larger cooking utensils than our meat can. That carried by the cavalry, at least in the English and Belgian services, is smaller than that carried by the infantry, but still large enough for use in making a stew, while the infantry mess tin is quite large enough for use in making soup. The cover in most cases is furnished with a handle, so that it may be used as a frying pan as with us.

The French gamelle carried by the individual soldier holds $1\frac{1}{2}$ quarts, the German article 3 quarts. The French have also a large gamelle carried by every fourth soldier. A similar article was noted in the German equipment. Every other Austrian trooper carries a gamelle which is large enough for two men.

All these utensils are so large that they are usually carried on the outside of the pack in either cavalry or infantry, though the Belgian trooper carries his in one of the pouches on the pommel of the saddle.

The Austrian infantry man has an extra dish or cup which is the exact shape of his gamelle, and just large enough to slip over the bottom. Considering our system of company and detachment messes, and the fact that the meat can is rarely actually needed, except as a plate, it would seem that our meat can is superior for our use at least, to anything used in foreign services.

CANTEEN.

The English canteen is of tin, somewhat similar in shape to ours, but a trifle smaller.

The French have a canteen shaped like the illustration, divided into two compartments—one for water and the other for wine.

The Austrian cavalry use a glass flask inclosed in a tin case; that carried by their infantry is very small.

The Italians use a small wooden canteen—something like a small keg, with elliptical ends.

The Germans are ahead of all of us in this respect, having a light aluminium canteen, spun without joint or seam and holding about nine-tenths of a quart. These are made of pure aluminum, victoria alloys, or, still better, of Wolfram aluminium—one of the stiffest alloys yet discovered. Its shape—like a flask—recommends itself quite as much as the material from which it is made. The concave side being next to the body, the canteen oscillates less from side to side than does our own. This canteen, of course, can be made of any desired size.



FRENCH CANTEEN.

CUP.

The cups, so far as observed, are quite small, and have no soldered joints, but are pressed or stamped out of heavy tin or aluminium. The French cup holds a pint, and is shaped like a teacup with handle. The German cup is cylindrical, with oval ends with two wire handles which fold in to the side. It holds three-fourths of a pint.

CARTRIDGE BOXES.

Cartridges are found everywhere carried in boxes, usually two boxes in front of the body and one or two in rear. Nothing was seen which approaches the Mills belt for convenience and comfort.

CARBINE SLING AND BOOT.

The English and French carry the carbine in a boot on the off side hanging vertically and near the cantle, and, in the former service at least, it is not yet attached to the trooper; but the late General Fraser, the inspector general of English cavalry, stated that, regarding it as essential that the carbine be always attached to the man, he had devised a sling for this purpose.

The Belgian and Austrian troopers carry the carbine slung over the back, the latter having the sling drawn very tight, to prevent the piece from striking against the body when at rapid gaits. The Germans carry the carbine the same as the English when mounted, but when dismounted carry it slung over the back, or at least the carbine is provided with a sling so that it can be carried in this manner.

REVOLVER.

In foreign services where this arm is used at all, it is carried almost invariably by the officers, noncommissioned officers, and trumpeters only. At Woolwich it was noticed that the cadets were practiced at firing at moving targets and using the revolver with either hand.

SABER.

The Belgian method of carrying the saber by means of a V-shaped strap, with a frog on the rear side of the saddle, near the cantle, deserves attention and experiment.

The Germans carry the saber attached to the saddle behind the left thigh; the long strap and the lower band attached to the scabbard have been dispensed with; only the single (upper) band and short strap are now used.

Several squadrons of the regiment of hussars of the guard in Germany have received wooden saber scabbards covered with black rubber to replace the steel scabbard. These experimental scabbards are said to have the advantage of being noiseless and less conspicuous at a distance.

BITS.

In all foreign services both a curb bit and bridoon are used, and due to this, and the longer time (about 6 months) devoted to the training of remount horses, the effect is noticeable, for everywhere it was found that the horses were apparently better trained and carry themselves better than our own. Their curb bit, except in the Austrian service, is very heavy, the English curb being similar to the one which we discarded for the Shoemaker bit. The Austrians have a light steel bit in several sizes, much like the United States model of 1892, but with more curve in the branches. The German curb is remarkable for the large diameter of the mouth piece.

HORSESHOES.

It was noticed that instead of throwing away half-worn shoes, as we do, the English and Belgians make the shoes over, and claim that shoes so made over are rather more durable than new shoes. They have regimental shops for shoeing, and farriers are required to make half their own shoes. Part of the shoeing is done without heating the shoes—this to accustom farriers to properly prepare the horse's feet to receive shoes previously fitted to the horse, as would be required in the field.

SADDLE.

The saddle generally used is the English riding saddle, or some modification of it, and usually has a sort of pad about the edge of the side flaps in front of the knee. This saddle gives rather more bearing service along the horse's back than we get from the McClellan. The Austrians have saddles of four or five sizes to fit the horse as well as the man—something which we might well imitate. At present they are testing the merits of a saddle the bars of which are hinged to the metal braces constituting the pommel and cantle.

SADDLEBAGS.

A pair of pouches at the pommel seems to be preferred abroad to saddlebags such as we use. Extra shoes—one fore and one hind—are, with the English, French, and Austrians, carried in a separate pocket attached to the cantle. The Germans have recently introduced auxiliary pockets of canvas which are carried underneath the pack pouches.

The Belgians have canvas saddlebags on the cantle in addition to the leather front pouches just described, and the French officer's saddle is provided with similar bags of leather.

SADDLE BLANKET.

No saddle blanket was seen abroad which is as soft and fine as ours, though usually their blankets give a greater thickness of material between the saddle and the horse's back

than do our own. Indeed no blankets furnished, even to the men, are of as fine quality as our saddle blankets.

NOSEBAG.

The English, Belgians, and French all have a linen nosebag much lighter than ours; they appear to be durable, inexpensive, and it is thought that they are rather an improvement on our own.

HALTERS.

No halters abroad are so heavy as ours, and it is thought that we might study the Austrian pattern to advantage, as the nosebands of these halters are adjustable, and when the snaffle bit alone is used this noseband plays an important part in the management of the horse.

FORAGE.

The Austrian trooper who was turned out with saddle packed for inspection, had done up in his forage sack and strapped to the cantle of his saddle a quantity of forage about double the bulk of the trooper's ordinary blanket roll. This trooper also carried a short picket rope and wooden picket pin. A telescopic canvas water bucket was also shown, which is carried by each seventh man, and a hatchet carried by each fourth man. This trooper appeared to be overloaded—carrying everything which he could by any possibility need, and a number of things which he could easily get along without.

SHELTER TENT.

The Austrians have recently adopted a shelter tent of light, strong, waterproofed linen, bound at the edge with wide braid, and provided with suitable cords (not ropes as with us) for attaching to the tent pegs. The pieces are not rectangular as with us, and can, in an emergency, be used as a light storm coat. Two pieces make a tent for three men. Rifles with bayonets fixed furnish the tent poles. Size (lozenge-shaped) 6 feet 7 inches on each side and on the small diagonal; weight, 2 pounds 4 ounces. Samples of this coat tent are now being tested at Forts Sheridan, Snelling, and Myer, and Columbus Barracks.

Tents are used abroad far less than with us, as those thickly settled countries permit troops to be billeted in houses.

By means of the Tortoise system of tents manufactured by the Military Equipment Stores in London, a greater number of men can apparently be sheltered with a given weight of canvas than with us, as they use a lighter canvas (10½-ounce duck) than we do, and subject it to a waterproofing process, making what is known as Willesdenized canvas. The tents when taken down are carefully folded and done up in heavy cases of brown canvas to avoid the wear and tear incident to transportation.

A shelter tent known as the "Kamtschatka tent" has been experimented with in Russian Poland under conditions where the night temperature was as low as -13° F. and a strong wind blowing, yet in parts of the tent farthest from the fire a temperature of 43° F. could be maintained. These tents are of various sizes, accommodating from 8 to 40 men each, and are constructed of pieces of canvas carried by the men themselves; the medium size, constructed of 11 pieces of canvas and holding 15 to 18 men each, gave the best results.

CROSSING OF STREAMS.

Experiments with inflated swimming sacks or balloons, the invention of Captain Klima of the military swimming school at Vienna, have recently been made in Hungary.

This device for floating men and horses consists of two inflated balloons fastened to man and horse by means of a breast belt.

QUARTERS, BEDDING, ETC.

Iron bedsteads with no springs, and bedsacks stuffed with straw seem to be the rule. Blankets were observed to be of the coarsest description.

In one of the Garde regiments in Berlin which was visited, it was stated that the squad rooms were visited by the officers but once a week. The usual bill of fare in this regiment was stated to be about as follows:

Breakfast.—Bread and coffee.

Dinner.—Bread and coffee with meat and peas.

Supper.—Bread and coffee, with the addition of meat on Tuesdays and Thursdays.

If the soldier desired more he was obliged to purchase it out of his pay.

MODIFICATIONS IN THE CLOTHING AND EQUIPMENT OF THE GERMAN INFANTRY MAN.

The *Armee-Verordnungsblatt* of the 7th of June, 1895, publishes a cabinet order, dated the 25th of May, 1895, ordering that henceforth the haversacks, cartridge boxes, helmets, shirts, and drawers be manufactured according to patterns, the descriptions of which are similar to those of the various samples of equipment experimented with a year ago; and ordering in addition that the cut of the collar and wrist of the infantry tunic shall be modified according to directions similar to those applying to the cut experimented with by certain battalions, designated for that purpose, a year ago. (See pages 107 and 108, pamphlet No. 4, Military Information Division series.)

The minister of war has sent word to every corps commander that one sample of each modified article will be sent directly to him, to serve as a pattern for all further manufactures.


Nothing shows, however, that the samples of clothing and equipment recently adopted in the German infantry are exactly similar to those experimented with in 1894.

The litewka, a sort of loose-fitting tunic blouse with falling collar, first prescribed for certain troops of the German landwehr and landsturm, is now coming into general use in the German army itself, and all officers are now authorized to wear it under the circumstances when the summer tunic is allowed.

The straps on all equipments are to be of black tanned leather.

These new equipments are also to be issued to pioneers and railroad troops when the experiments now being made as to method of carrying intrenching tools are completed.

In table equipment it was noticed that the Belgians are using porcelain-lined metal ware.

On inspecting the storeroom of a Belgian escadron (corresponding to our troop) it was noticed that for each there was provided a couple of Linneman spades, one or two small picks, a pouch for dynamite, and each platoon was provided with a  shaped ring 6 to 8 inches in diameter for use in tying horses in a circle. When the platoon dismounts to fight on foot, from 12 to 16 horses are attached to one of these rings.

The Russian cavalry is provided with the necessary intrenching tools. A dragoon regiment has 120 small spades, 144 picks, and 24 large spades (long-handled); further, either dry or moist pyroxylin cartridges to a total weight of 126 pounds; also, 3 augers, 1 hammer, 1 chisel, and 4 saws for bridge building.

"Finally, each cavalry squadron is equipped with one Herschelmann field telegraph apparatus."—*Internationale Revue*, December, 1894.

TRAINING AND THE CARE OF HORSES.

Six months is considered abroad not too long a time for training remount horses. The Austrians use the snaffle for about four months and the curb and snaffle the remaining two months. They seem to use both hands with the snaffle to a greater extent than we do. Horses abroad are groomed much more than ours—particularly after exercise. Although the cold was not at all excessive, horses were found blanketed in warm stables.

The grade of horses among the English, French, Belgian, and German cavalry regiments is a little better than in our service, while the Austrians are very much better mounted than any other cavalry in Europe.

BOOTS.

Boots in several services are made to lace at the instep, as is the case with the Thompson boot used by our sportsmen. A steel collar shaped like a horseshoe is used in reenforcing the heel. The Germans are using Wolfram-aluminium hobnails, which ought to work well.

INFANTRY EQUIPMENT.

The cowhide knapsack, with hair on the outside, seems to be used universally in Europe. To accustom men to its weight, they drill constantly with the full pack, which in some services is carried even on guard.

An Austrian infantry man who was inspected carried 100 rounds of ammunition, 40 rounds being in boxes in front of the body and 60 rounds in a box just under the knapsack. He carried an extra pair of shoes, a number of unnecessarily large and heavy cleaning brushes, 3 days' rations, and a change of underclothing. The weight of his entire pack was said to be about 55 pounds.

ALUMINIUM EQUIPMENTS.

Since the publication of volume No. 4 of the series of publications of the Military Information Division the following progress in the application of aluminium to military purposes has been noted:

In the German and French armies its value in the manufacture of certain articles of military equipment seems to be thoroughly appreciated. It is reported that in the German

army two corps are provided to a greater or less extent with aluminium equipments, and there are no less than 125,000 aluminium canteens or water bottles, 50,000 cooking utensils for the individual soldier, and 90,000 sets of mountings for shelter-tent poles in use.

In France it is stated that about 40,000 gamelles, or cooking utensils for the individual soldier, and 20,000 each of canteens and cups are either ordered or in use.

These numbers are approximate only, but indicate that in these countries the use of aluminium and its alloys has passed the experimental stage in several important articles of equipment.

In Belgium, aluminium canteens and cooking utensils for the individual soldier are being experimented with, but the results have not yet been made public.

In England, 1,000 aluminium cooking utensils for the individual soldier have been ordered for trial.

Alloys of aluminium, from their hardness and rigidity, are better adapted for most articles of equipment than the pure metal; it seems also to have been pretty thoroughly demonstrated that an alloy which is well adapted for one article of equipment may be entirely unsuitable for another, and the particular alloy adapted in each instance can only properly be determined by careful experiment. Fortunately the alloys are but little more expensive than the pure metal, and but little heavier.

An important feature of such articles as canteens, cups, cooking utensils, etc., made of aluminium alloys, is that they can, by means of stamping and spinning, be made entirely without soldered joints, and however badly crushed and dented in service, can readily be hammered back into shape—an important consideration in the field.

The production of metal has increased so enormously in the past decade that the development in working it has also been great, and we find results to-day which three years ago were hardly believed to be possible.

A recent invention in aluminium alloys is Wolframium, discovered by William Berg, a German contractor of aluminium military equipments, who also invented the victoria alloy.

The composition of Wolframium is a trade secret, and it is said to be stronger than the victoria alloy, and double the strength of pure aluminium.

In this country the most promising alloy is nickel aluminium which, like the victoria alloy, seems to be remarkably well adapted for castings. In this form (castings) it has a tensile strength of 25,000 to 30,000 pounds per square inch with the rigidity of cast iron. Its specific gravity is 3.0, while its remarkable resilience and ductility fit it for use in many articles of equipment. In the 7th Infantry it has been used, quite satisfactorily, for over a year in shelter-tent pins.

A few meat cans have been made at Rock Island Arsenal of stiffened aluminium sheets. These weigh but 6 ounces while the regulation meat can of tinned iron weighs 16 ounces. The only fault found with the aluminium meat can is that if placed in a fire without food, or some such material in it to conduct off the heat, it will melt. A regulation meat can subjected to the same treatment, would have the tin melted off at even a lower temperature than the melting point of the aluminium, and as it is scarcely supposable that the soldier will put his meat can in the fire unless he is cooking his food in it, the objection seems hardly worthy of serious consideration. The suggestion that the outside of aluminium meat cans be artificially blackened as is done with the cooking utensils carried in Germany by the individual soldier is deserving of experiment.

The *Broad Arrow* of December 28, 1895, says on this point that a process has been invented by Dr. Gottig, which is based on a chemical change of the surface of the metal,

produced by immersing the aluminium in a diluted solution of certain salts, in combination with ammonia, whereby a bronzed surface is produced. The coating, which is formed by a combination of aluminium with silicon, iron, etc., can be obtained in several shades; it will not rub off and greatly adds to the resistance of the metal. The bronzing process should be very suitable for water bottles, drinking cups, cooking utensils, and for many other purposes, such as instruments, handles of various kinds, cycles, etc. It will be especially useful for military purposes, as worn-off places can easily be rebronzed by anyone at a nominal cost, by simply dipping the article in the solution. Experiments made with bronzed articles have shown that they will not be affected by moisture. The German canteen of aluminium alloy is spun without joint or seam. It should therefore last indefinitely, as it can not rust as is the case with the regulation canteen, which is heavier by several ounces than the aluminium article.

“Experiments conducted to ascertain whether any deleterious reaction took place between the aluminium and the fluids usually carried in flasks, viz, wine, spirits, lemonade, etc., show that no cause for alarm exists. All ordinary cooking processes may be undertaken with aluminium utensils without danger; they only require ordinary cleanliness.”—*Jour. Royal Ser. Inst.*, Feb. 15, 1894.

On the three articles—meat can, canteen, and cup—it is believed that a pound in the weight carried by the soldier can be saved by making them of aluminium.

The reports on the durability of steel-faced aluminium horseshoes are sufficiently favorable to justify more extended trials with a view to their adoption for field use, especially to take the place of the shoes (one fore and one hind) carried in the saddlebags of each trooper. An advantage possessed by these shoes is that they can be fitted cold. Aluminium gun-sling hooks have been reported upon favorably, and aluminium belt plates having been given thorough tests in a number of companies are regarded as entirely satisfactory.

A Paris dispatch states that the fabrication of the French regulation saddletree in aluminium has already been commended and is now being developed by one of the contractors.

The aluminium frame is strengthened by a band of steel set into the metal without changing the shape of the tree, but giving it a strength which will stand in itself greater elasticity and a reduction of weight of more than a third over the old tree.

Other articles which seemed to be viewed with favor in foreign services are aluminium hobnails and heel plates for shoes, aluminium drum shells, castings for range finders, spurs, stirrups, and parts of limbers.

Among the novelties are camp cooking outfits suitable for small detachments or for officers' messes, each piece being spun from a single piece of metal without seams.

ERRATA AND ADDENDA.

Page 73, line 3: NOTE.—A Presidential decree of the 25th February, 1896, makes the following changes in the organization of the foot artillery:

“Art. 1.—Three new foot batteries are created, the composition of which will be regulated in conformity with table No. 1, annexed to the law of the 24th July, 1883.

“Art. 2.—The number of batteries of the 6th battalion of foot artillery is raised from 6 to 9.

“Art. 3.—The Minister of War will fix the date on which the new batteries will be created, and will give the necessary instructions for carrying the above decree into effect.”

Page 74: NOTE TO TABLE.—Counting the Alpine batteries, the total number of mounted and mountain batteries in the field artillery regiments amounts to 444. A Presidential decree of the 5th March, 1896, makes some changes in the relative numbers stated in the table. This decree is as follows:

“Decree concerning the distribution of batteries among the regiments of artillery.

“Tables Nos. 1 and 2 annexed to the decree of the 4th July, 1894, and modified by the decree of the 19th August, 1895, are modified to conform to the indications which follow:

TABLE NO. 1.

Mounted batteries.....	430
Mountain batteries	14.”

This, it will be observed, leaves very little mountain artillery in France except the Alpine batteries.

Page 93, second diagram from bottom, second column from the right: Instead of “Landwehr II” read *Landsturm I*.

Page 123, line 5, add: “The civil governor of Atchin and its dependencies, who is a military officer, is in addition commissioned as military governor. This province forms then a separate military command.”

Page 123, after line 28, add: “Since going to press, the 1896 edition of the ‘Regeerings Almanak voor Nederlandsch-Indië’ has been received, which shows considerable changes in the organization of the infantry battalions.”

ed with t.	1.2126	Cylindro-ogival	211.40	At 328.09 feet, 42.5 inches in pine.		12
with cu-	1.2126	Cylindro-ogival	172.40	At 13.12 yards, 55.12 inches in pine.	*7.716	14
-nickel-	1.2126	Cylindro-ogival	172.40	At 13.12 yards, 55.12 inches in pine.	*7.716	15
	1.25	Cylindro-ogival	244			19
f bullet,	1.232	Cylindro-ogival	243.40	At 82 yards, 31.49 inches in dry pine.		22
f bullet,	1.232	Cylindro-ogival	243.4			23
(copper, nickel,).	1.189	Cylindro-ogival	217.40	At 109 yards, 31.49 inches in pine.		24
	1.181	Cylindro-ogival	238			26
er cent;	1.25	Cylindro-conoidal	215.75	At 25 yards, 41 inches in fir tim- bers 12 x 12 inches.	At 3,000 yards, about 70 yards left.	6 to 8
er cent;	1.236	Cylindro-conoidal	215			
er cent.						27
(malle-	1.18	Cylindro-ogival, truncated.	231.35	At 218 yards, 23.62 inches		28
(malle-	1.18	Cylindro-ogival, truncated.	231			29
-nickel-	1.232	Cylindro-ogival	226.30	At 100 yards, 31.5 inches in sea- soned pine.		30
paper lead.		Cylindro-conoidal	386			31
t hard	1.063	Cylindro-ogival	385.15			33
1 steel; load.	1.2362	Cylindro-ogival	156			34
	.945	Cylindro-ogival	246	At 109 yards, 6.69 inches in oak.		35
	1.2 (?)	Cylindro-ogival	162	At 218 yards, 35.43 inches in pine.		36
	1.2	Cylindro-ogival, truncated.	238			38
	1.22		155			39
	1.259	Cylindro-ogival	246			40
-nickel-	1.236	Cylindro-ogival	158	At 43 yards, 49.017 inches in pine boards pressed together.		41
	1.2	Cylindro-ogival	211.35	At 310 yards, bullets penetrate 20 fir boards, 1 inch thick, placed 2 inches apart.		42
with cu-	1.2126	Cylindro-ogival	172.40	At 13.12 yards, 55.12 inches in pine.	*7.716	43
	1.259	Cylindro-ogival	221.45	At 109 yards, 3.496 inches in deal.	6.6 to 8.8	45a
						45b
with paper wrapper.	1.142	Cylindro-ogival	212.45	At 218 yards, 22.84 inches in pine.	3.53	46
	1.20	Cylindro-ogival	212.45	At 34.9963 yards, 48.82 inches in pine.		47

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